Drinking Water Surveillance Program

KINGSTON WATER TREATMENT PLANT

Annual Report 1988

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KINGSTON
WATER TREATMENT PLANT

DRINKING WATER SURVEILLANCE PROGRAM

ANNUAL REPORT 1988

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EXECUTIVE SUMMARY

DRINKING WATER SURVEILLANCE PROGRAM

KINGSTON WATER TREATMENT PLANT
1988 ANNUAL REPORT

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The Kingston Water Treatment Plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. This plant has a design capacity of 94.4 x 1000 m^3/day and serves a population of approximately 81,000.

Water samples from the raw, treated and two distribution sites were taken on a monthly basis and analyzed for approximately 160 parameters during 1988. Parameters were divided into the following groups Bacteriological, Inorganic and Physical(Laboratory Chemistry, Field Chemistry and Metals) and Organics (Chloroaromatics, Chlorophenols, Pesticide and PCB, Phenolics, Polynuclear Aromatic Hydrocarbons, Specific Pesticides and Volatiles). Specific Pesticides and Chlorophenols were analysed for in June and November only.

A summary of results is shown in Table 1.

Inorganic and Physical parameters (Laboratory Chemistry, Field Chemistry and Metals) were below any applicable health related ODWOs.

Of approximately 110 Organic parameters tested for on a monthly basis, none exceeded health related guidelines.

During 1988 the DWSP sampling results indicated that the Kingston Water Treatment Plant produced good quality water at the plant and this quality was maintained in the distribution system.

TABLE 1

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP

SUMMARY TABLE BY SCAN

	SCAN	RAW			TREATED			SITE 1			SITE 2		
		TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE	TESTS	POSITIVE	%POSITIVE
	BACTERIOLOGICAL	42	32	76	42	9	21	38	10	26	43	10	23
	CHEMISTRY (FLD)	34	34	100	72	72	100	89	89	100	86	86	100
	CHEMISTRY (LAB)	246	199	80	245	175	71	396	349	88	432	369	85
	METALS	285	148	51	262	123	46	513	297	57	560	308	55
	CHLOROAROMATICS	168	0	0	168	0	0	154	0	0	154	0	0
	CHLOROPHENOLS	12	0	0	12	0	0	.	.	.	.	.	.
	PAH	204	0	0	204	0	0	.	.	.	.	.	.
	PESTICIDES & PCB	396	0	0	383	0	0	362	0	0	375	0	0
	PHENOLICS	12	2	16	12	2	16	.	.	.	.	.	.
	SPECIFIC PESTICIDES	56	0	0	56	0	0	0	0	0	0	0	0
	VOLATILES	287	4	1	287	41	14	259	36	13	287	40	13
TOTAL		1742	419		1743	422		1811	781		1937	813	

NO HEALTH-RELATED GUIDELINES WERE EXCEEDED

A POSITIVE VALUE DENOTES THAT THE RESULT IS GREATER THAN THE STATISTICAL LIMIT OF DETECTION AND IS QUANTIFIABLE
A '.' INDICATES THAT NO SAMPLE WAS TAKEN

DRINKING WATER SURVEILLANCE PROGRAM

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INTRODUCTION

The Drinking Water Surveillance Program (DWSP) for Ontario is a monitoring program providing immediate, reliable, current information on drinking water quality. The DWSP officially began in April 1986 and is designed to eventually include all municipal supplies in Ontario. Currently, 52 plants are being monitored.

The DWSP was initiated at the Kingston Water Treatment Plant in January of 1986. An annual report was published for 1986 (ISBN 0-7729-2557-7) and 1987 (ISSN 0839-9050).

This report contains information and results for 1988.

PLANT DESCRIPTION

The Kingston Water Treatment Plant is a conventional treatment plant which treats water from Lake Ontario. The process consists of coagulation, flocculation, sedimentation, filtration and disinfection. Sulphur Dioxide is added for dechlorination. The plant has a design capacity of 94.4 x 1000 m^3/day and sample day flows ranging from 42 x 1000 m^3/day to 70 x 1000 m^3/day.

This plant serves a population of approximately 81,000.

The plant location is shown in Figure 1. Plant Process details, in a block schematic, are shown in Figure 2. General plant information is presented in Table 2.

METHODS

Water samples were obtained from four DWSP approved locations;

i) Plant Raw - The water originated from the wet well prior to chlorination and was sampled through a copper line. The sample tap is located in the plant laboratory.

ii) Plant Treated - The water originated from the highlift discharge after addition of all treatment chemicals and was sampled through a copper line. The sample tap is located in the plant laboratory.

iii) Distribution System - Site 1 - This house is approximately 4.1 kilometers from the plant. Water was sampled through copper plumbing from the basement laundry tap.

iv) Distribution System - Site 2 - This house is approximately 5.7 kilometers from the plant. Water was sampled through copper plumbing from the basement laundry tap.

FIGURE 1

DRINKING WATER SURVEILLANCE PROGRAM

SITE LOCATION MAP

KINGSTON WATER TREATMENT PLANT

FIGURE 2

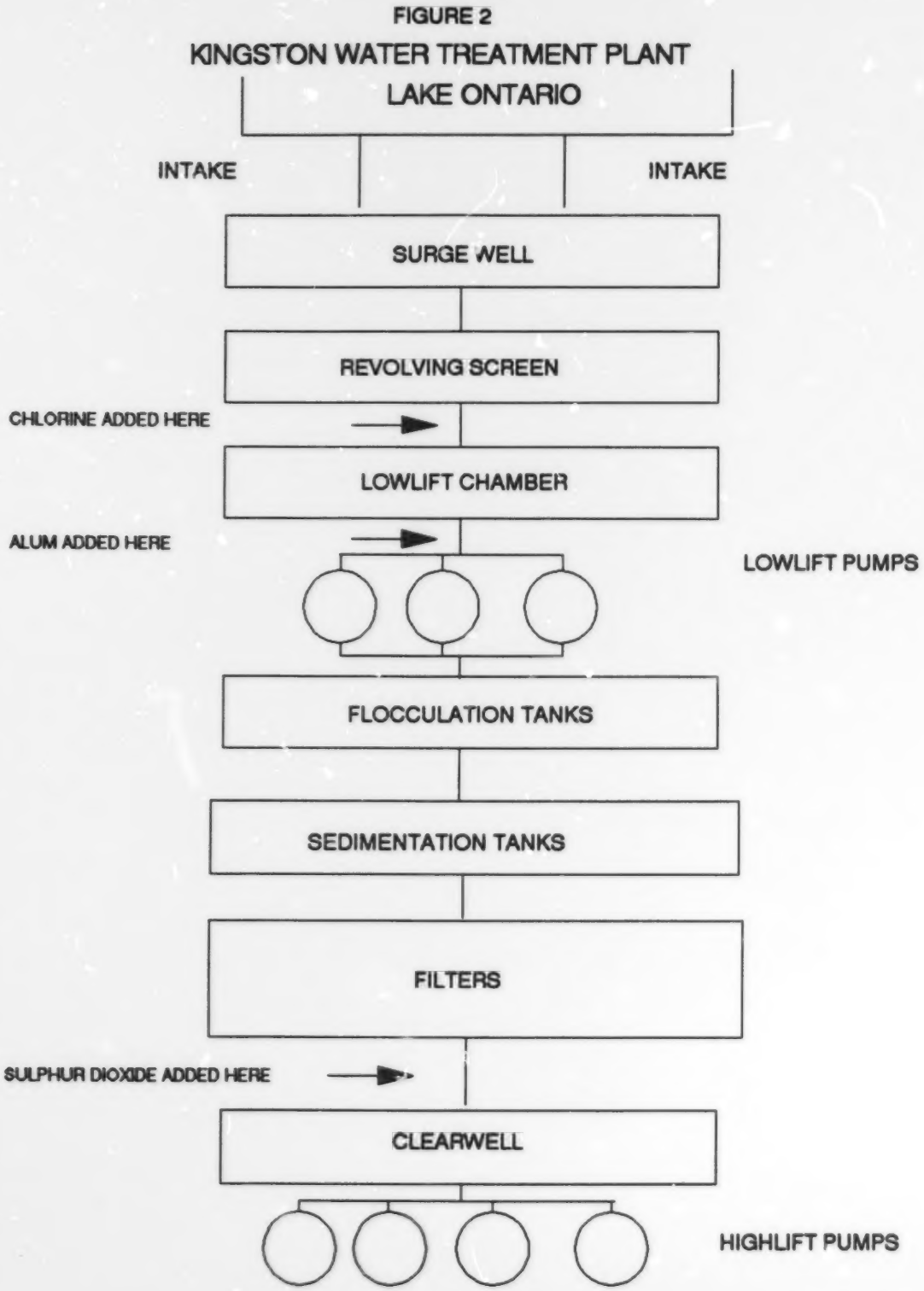
KINGSTON WATER TREATMENT PLANT
LAKE ONTARIO
INTAKE
INTAKE
SURGE WELL
REVOLVING SCREEN
CHLORINE ADDED HERE
LOWLIFT CHAMBER
ALUM ADDED HERE
LOWLIFT PUMPS
FLOCCULATION TANKS
SEDIMENTATION TANKS
FILTERS
SULPHUR DIOXIDE ADDED HERE
CLEARWELL
HIGHLIFT PUMPS

TABLE 2

DRINKING WATER SURVEILLANCE PROGRAM ANNUAL REPORT

GENERAL INFORMATION

KINGSTON WATER SUPPLY SYSTEM

LOCATION:	302 KING STREET WEST KINGSTON, ONTARIO K7L 2X1 (613-542-1763)
SOURCE:	RAW WATER SOURCE - LAKE ONTARIO
DESIGN CAPACITY:	94.4 (1000 M^3/DAY)
OPERATION:	MUNICIPALITY
PLANT SUPERINTENDENT:	K. ALLEN
MINISTRY REGION:	SOUTHEAST
DISTRICT OFFICER:	MR. J.F. PRUNER

MUNICIPALITY SERVED	POPULATION
KINGSTON	81,000

Sample lines in the plant were flushed prior to sampling to ensure that the water obtained was indicative of its origin and not residual water standing in the sample line.

At both distribution system locations two types of samples were obtained: a standing and a free flow. The standing sample consisted of water that had been in the household plumbing and service connection for a minimum of six hours. These samples are used to make an assessment of the amount by which the levels of inorganic compounds and metals may be changed on standing due to leaching from (or deposition on) the plumbing system. The only analyses carried out on the standing samples therefore, are General Chemistry and Metals. The free flow sample represented fresh water from the distribution main that had been flowing at the sample tap for five minutes before being sampled.

Attempts were made to capture the same block of water at each sampling point by taking the retention time into consideration. The retention time was calculated by dividing the volume of water between the two sampling points by the sample day flow. For example, if it was determined that the retention time within the plant was five hours then there would be a five hour interval between the raw and treated sampling. Similarly if it was estimated that it took approximately one day for the water to travel from the plant to the distribution system site, this site

would be sampled one day after the treated water from the plant.

Stringent DWSP sampling protocols were followed to ensure that all samples were taken in a uniform manner.

Sample day flow, treatment chemical dosages and Field Chemistry measurements were recorded on the day of sampling and were entered on the DWSP database as submitted.

RESULTS

Water at the Kingston Water Treatment Plant was sampled for approximately 160 parameters on a monthly basis in 1988. The Specific Pesticides and Chlorophenols scans were sampled for in June and November only. Polynuclear Aromatic Hydrocarbons and Phenolics are only analysed for in the raw and treated water at the plant. As a result of an unforeseen emergency the laboratory capacity was exceeded and analysis for volatiles could not be carried out when the samples were received. Since analysis for volatiles is no longer valid after four weeks of storage, volatile results for February and March are not available.

Table 3 contains information on the sample day retention time, flow rate and treatment chemicals used and their associated dosages.

Table 4 is a summary break-down of the number of water samples

analysed by parameter and by water type. The number of times that a positive or trace result was detected is also reported. Positive denotes that the result is greater than the statistical limit of detection established by the Ministry of the Environment (MOE) laboratory staff and is quantifiable. Trace (<T) denotes that the level measured is greater than the lowest value detectable by the method but lies so close to the detection limit that it cannot be confidently quantified.

Table 5 presents the results for parameters detected on at least one occasion.

Table 6 presents parameters analysed in DWSP.

Associated guidelines and detection limits are also supplied on tables 5 and 6. Parameters are listed alphabetically within each scan.

DISCUSSION

General

Water quality is judged by comparison with the Ontario Drinking Water Objectives (ODWOs) as defined in the 1984 publication (ISBN 0-7743-8985-0). The Province of Ontario has health related and aesthetic objectives for 49 parameters. These are currently under review. When an ODWO is not available

guidelines/limits from other agencies are consulted. The Parameters Listing System (PALIS) recently published (ISBN 0-7729-4461-X) by the MOE catalogues and keeps current over 1750 guidelines for 650 parameters from agencies throughout the world.

Although some of the parameters measured on DWSP may be present in the raw and treated water as a result of pollution, many of the compounds detected are naturally occuring or are treatment by-products.

Plant operational personnel address occurrences of taste and odour or biological water quality parameters. The DWSP does not assess these aspects of the water supply.

As stated under Results, traces do not indicate quantifiable values, as defined by established MOE Laboratory analytical reporting protocols. While they can be useful in trend analysis or confirmation of the presence of a specific contaminant that is repeatedly detected at these levels, the occasional finding of a trace level of a contaminant is not considered to be significant. **DISCUSSION OF GUIDELINES AND LIMITS THEREFORE, IS ONLY CONDUCTED ON POSITIVE RESULTS.**

Bacteriology

Positive results for the Bacteriology scan were present nine times in the treated water, ten times in the distribution system Site 1 water and ten times in the Site 2 water. The positive parameters were Standard Plate Count and Total Coliform Background.
Standard Plate Count is a test used to supplement routine analysis for Coliform bacteria. The limit for Standard Plate Count (at 35°C after 48 hours) in the ODWOs is 500 organisms per mL (based on a geometric mean of 5 or more samples). One high Standard Plate Count wwas present in the August distribution system Site 1 water. While no indicators of unsafe water were detected at this time, the high Standard Plate Count may be indicative of a slight deterioration in conditions in the distribution system. A total Chlorine Residual of at least 0.10 mg/L was detected in the distribution system Site 1 sample. No samples contained bacteriological results over any applicable health related ODWOs.

Guidelines for bacteriological sampling and testing of a supply are developed to maintain a proper supervision of its bacteriological quality; the routine monitoring program usually requires the taking of multiple samples in a given system. Full interpretation of bacteriological quality cannot be made on the basis of single samples. Further, bacteriological limits were developed in acknowledgement that the presence of coliforms may be detected due to their non-uniform distribution throughout the

distribution system and the fact that their enumeration is subject to considerable variation. Routine bacteriological monitoring, as outlined in the ODWOs is carried out by the operating authority.

Inorganic and Physical Parameters

Laboratory and Field Chemistry

The results for Laboratory and Field Chemistry scans were below any applicable health related ODWOs .

The Langelier Index is used extensively in estimating the corrosion potential of water. An increasingly negative index indicates the increasing possibility of corrosion. It is considered sound engineering practice to maintain a slightly positive Langelier Index. The Langelier Index for the Kingston water is consistently positive.

It is desirable that the Temperature of drinking water be less than 15°C; the palatability of water is enhanced by its coolness. A temperature below 15°C will tend to reduce the growth of nuisance organisms and hence minimize associated taste, colour, odour and corrosion problems. The temperature of the delivered water may increase in the distribution system due to the warming effect of the soil in late summer and fall and/or as a result of higher temperatures in the source water. The desired ODWO was exceeded nine times in the treated water and free flow distributed water.

Metals

The results reported for the Metal scan were below any applicable health related ODWOs.

Copper, Iron and Manganese levels were lower in the treated water as compared to the raw water. This is a result of the treatment process. The addition of Alum as a coagulant to the raw water and the resulting coagulation/settling process has been shown to reduce the levels of most metals.

Elevated levels of Copper, Lead and Zinc were generally detected in the standing samples from the distribution system as compared to the free flow samples thus, indicating that small quantities of these metals were leached from the household plumbing as the water stood overnight. Although the Langelier Index indicates minimal potential for corrosion some metals will be leached in standing samples in most supplies.

At present, there is no evidence that Aluminum is physiologically harmful and no health limit for drinking water has been specified. The measure of residual Aluminum in the treated water is important to indicate efficiency of the treatment process. The ODWOs indicate that a useful guideline is to maintain a residual below 0.1 mg/L as Al in the water leaving the plant to avoid problems in the distribution system. Aluminum values exceeded the ODWO operational guideline twice in the treated water.

Organic Parameters

Chloroaromatics

Results of the Chloroaromatics scan showed one parameter was detected:

Hexachloroethane

Hexachloroethane was detected at trace levels, once in the treated water, three times in the distribution system Site 1 water and twice in the Site 2 water.

Review of these results, along with past information from other water supplies on DWSP, would indicate that certain Chloroaromatics appear more frequently in the treated water than in the raw and almost always only at trace levels. These occurrences could possibly be due to a reaction of chlorine with organics present in the water or in the distribution system.

Chlorophenols

Results of the Chlorophenol scan showed that one Chlorophenol was detected:

Pentchlorophenol

Pentachlorophenol was detected at a trace level in one raw water sample.

Pesticides and PCB (Polychlorinated Biphenyl)

Results of the Pesticide and PCB scan showed that no PCBs were detected and that three pesticides were detected:

Alpha BHC

Beta BHC

Lindane

There are several isomers of BHC (Benzene Hexachloride); gamma BHC is the active ingredient of the pesticide Lindane, while alpha BHC is the isomer most predominant in surface waters in the Great Lakes basin as indicated in results from other water supplies on DWSP.

Alpha BHC was detected at trace levels, seven times in the raw water, eight times in the treated water, seven times in the Site 1 water and eight times in the Site 2 water.

Beta BHC was detected at trace levels, once in the raw water and twice in the treated water.

Lindane was detected at trace levels, twice in the raw water, twice in the treated water, and once in the Site 1 and Site 2 water.

Specific Pesticides

Results of the Specific Pesticide scan showed that no parameters were detected.

Phenolics

The maximum desirable concentration of phenolic substances in drinking water is 2.0 ug/L. This limit has been set primarily to prevent the occurrence of undesirable tastes and odours, particularly in chlorinated water. Phenolics were detected at 1.4 and 1.6 ug/L in the August raw and treated water samples and 1.0 and 0.8 ug/L in the December raw and treated water samples. Phenolics were detected at trace levels, four times in the raw water and five times in the treated water. Phenolic compounds are present in the aquatic environment as a result of natural and/or industrial processes.

Polynuclear Aromatic Hydrocarbons (PAH)

Results of the PAH scan show that no PAHs were detected.

Volatiles

The results of the Volatile scan showed that nine parameters other than Trihalomethanes (THMs) were detected:

Benzene

Toluene

Ethylbenzene

Meta-Xylene

Ortho-Xylene

Styrene

1,1,1-Trichloroethane

Tetrachloroethylene

1,4-Dichlorobenzene

Benzene was detected at a trace level, once in a treated water sample.

Toluene was detected at trace levels, once in the raw water and once in the treated water. The detection of toluene at low, trace levels is a laboratory artifact derived from the analytical methodology. The purge-and-trap analytical technique depends on the purging of the volatile organics in the water sample with helium gas onto a Tenax trapping column. The volatile materials are subsequently thermally desorbed, separated and quantified. Tenax, a toluene-like polymeric material, tends to decompose sporadically upon heating into toluene and other aromatic componenets (ethylbenzene and xylene) giving instrument blanks in the order of 0.05 ug/L.

The detected trace levels of Styrene are also considered to be laboratory artifacts due to the outgassing of monomeric styrene from the polystyrene shipping containers. The sporadic background levels from this source are in the order of 0.05 ug/L.

Styrene was detected at 0.50 ug/L in the October raw water sample and 0.55 ug/L in the treated water for the same month. The United States Environmental Protection Agency (EPA) have proposed a Maximum Contaminant Level (MCLG) of 140 ug/L.

Ethylbenzene was detected at trace levels, four times in the raw water, six times in the treated water, twice in the distribution system Site 1 water and once in the Site 2 water.

Para and Meta-Xylene are measured as one compound (M-Xylene) and were detected at a trace level, once in the treated water.
Ortho- Xylene was detected at a trace level, once in a treated water sample.

The volatiles listed above are typically found on an occasional basis at other water supplies included on the DWSP usually at trace levels.

1,1,1-Trichloroethane was detected at a trace level, once in a raw water sample.

Tetrachloroethylene was detected at trace levels, once in a treated water sample and once in a Site 1 water.

1,4-Dichlorobenzene was detected at a trace level, once in a treated water sample.

THMs are known to be produced during the water treatment process and will always occur in chlorinated surface waters. THMs are comprised of Chloroform, Chlorodibromomethane and Dichlorob-

Dichlorobromomethane. Bromoform occurs occasionally. Results are reported for the individual compounds as well as for total THMs.

Chloroform, Chlorodibromomethane, Dichlorobromomethane and Total THMs were detected in all treated waters. Bromoform was detected at trace levels, eight times in the treated water, seven times in the Site 1 water and nine times in the Site 2 water. All Total THM occurrences, ranging from 17.6 ug/L to 47.8 ug/L, were well below the ODWO of 350 ug/L.

THMs were detected at trace levels in one raw water sample indicating the presence of small amounts of chlorine.

Comparison with the results from the DWSP in 1986 and 1987 shows that the raw and treated water quality has remained consistent.

CONCLUSIONS

The Kingston Water Treatment Plant for the sample year of 1988 produced good quality water at the plant and this was maintained in the distribution system.

No health related guidelines, for organic or inorganic parameters, were exceeded during 1986, 1987 or 1988.

TABLE 3

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP SAMPLE DAY CONDITIONS FOR 1988

	SAMPLE DAY CONDITIONS		TREATMENT CHEMICAL DOSAGES (MG/L)		
			PRE-CHLORINATION	COAGULATION	DECHLORINATION
			CHLORINE	ALUM LIQUID	SULPHUR DIOXIDE
DATE	RETENTION TIME(HRS)	FLOW (1000 M3)			
JAN 05	6.8	53.0	1.30	8.70	.14
FEB 02	6.0	62.0	1.20	8.20	.18
MAR 08	8.8	44.0	1.20	10.10	.10
APR 06	7.9	47.0	1.30	8.80	.07
MAY 10	7.7	48.0	1.50	10.20	.41
JUN 07	5.5	62.0	1.90	10.40	.23
JUL 05	6.0	60.0	1.80	7.10	.31
AUG 09	5.2	70.0	2.00	9.30	.06
SEP 07	8.1	44.0	1.80	9.90	.21
OCT 04	8.5	42.0	1.60	6.70	.06
NOV 08	6.8	53.0	1.40	8.70	.20
DEC 06	6.4	55.0	1.30	8.50	.21

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	RAW			TREATED			SITE 1			SITE 2		
		TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
BACTERIOLOGICAL	FECAL COLIFORM MF	12	4	0	.	.	.	.	.	.	.	.	.
	STANDRD PLATE CNT MF	6	6	0	12	7	0	9	7	0	11	8	0
	P/A BOTTLE	.	.	.	8	0	0	7	0	0	8	0	0
	TOTAL COLIFORM MF	12	10	0	11	0	0	11	0	0	12	0	0
	T COLIFORM BCKGRD MF	12	12	0	11	2	0	11	3	0	12	2	0
*TOTAL SCAN BACTERIOLOGICAL		42	32	0	42	9	0	38	10	0	43	10	0
*TOTAL GROUP BACTERIOLOGICAL		42	32	0	42	9	0	38	10	0	43	10	0
CHEMISTRY (FLD)	FLD CHLORINE (COMB)	.	.	.	12	12	0	18	18	0	15	15	0
	FLD CHLORINE FREE	.	.	.	12	12	0	5	5	0	.	.	.
	FLD CHLORINE (TOTAL)	.	.	.	12	12	0	18	18	0	15	15	0
	FLD PH	12	12	0	12	12	0	20	20	0	24	24	0
	FLD TEMPERATURE	11	11	0	12	12	0	20	20	0	24	24	0
	FLD TURBIDITY	11	11	0	12	12	0	8	8	0	8	8	0
*TOTAL SCAN CHEMISTRY (FLD)		34	34	0	72	72	0	89	89	0	86	86	0
CHEMISTRY (LAB)	ALKALINITY	12	12	0	12	12	0	22	22	0	24	24	0
	CALCIUM	12	12	0	12	12	0	22	22	0	24	24	0
	CYANIDE	12	0	0	11	0	0	10	0	0	12	0	1
	CHLORIDE	12	12	0	12	12	0	22	22	0	24	24	0
	COLOUR	12	6	6	12	0	12	22	22	0	24	16	8

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
CHEMISTRY (LAB)	CONDUCTIVITY	12	12	0	12	12	0	22	22	0	24	24	0
	FLUORIDE	12	12	0	12	12	0	22	22	0	24	24	0
	HARDNESS	12	12	0	12	12	0	22	22	0	24	24	0
	IONCAL	12	5	0	12	5	0	22	10	0	24	10	0
	LANGELIERS INDEX	12	12	0	12	12	0	22	22	0	24	24	0
	MAGNESIUM	12	12	0	12	12	0	22	22	0	24	24	0
	SODIUM	12	12	0	12	12	0	22	22	0	24	24	0
	AMMONIUM TOTAL	12	8	4	12	8	4	22	14	8	24	17	7
	NITRITE	12	3	8	12	1	8	22	5	17	24	3	20
	TOTAL NITRATES	12	12	0	12	12	0	22	22	0	24	24	0
	NITROGEN TOT KJELD	12	12	0	12	12	0	22	22	0	24	23	1
	PH	12	12	0	12	12	0	22	22	0	24	24	0
	PHOSPHORUS FIL REACT	12	8	3	12	1	10	.	.	.	.	.	.
	PHOSPHORUS TOTAL	12	7	4	12	0	3	.	.	.	.	.	.
	TOTAL SOLIDS	1	1	0	1	1	0	2	2	0	2	2	0
	SULPHATE	5	5	0	5	5	0	10	10	0	10	10	0
	TURBIDITY	12	12	0	12	10	2	22	22	0	24	24	0
*TOTAL SCAN CHEMISTRY (LAB)		246	199	25	245	175	39	396	349	25	432	369	37
METALS	SILVER	12	0	6	11	0	6	22	0	12	24	0	6
	ALUMINUM	12	12	0	11	11	0	22	22	0	24	24	0
	ARSENIC	11	4	7	10	1	9	20	1	18	22	0	22
	BARIUM	12	12	0	11	11	0	22	22	0	24	24	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

		SITE											
		RAW			TREATED			SITE 1			SITE 2		
SCAN	PARAMETER	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE	TOTAL	POSITIVE	TRACE
METALS	BORON	11	11	0	10	10	0	22	22	0	24	24	0
	BERYLLIUM	12	0	5	11	0	5	22	0	15	24	0	16
	CADMIUM	12	0	3	11	0	3	22	0	4	24	0	2
	COBALT	12	0	11	11	1	10	22	0	19	24	0	21
	CHROMIUM	12	4	8	11	4	7	22	8	14	24	9	15
	COPPER	12	12	0	11	10	1	22	22	0	24	24	0
	IRON	12	0	12	11	0	3	22	22	0	24	20	4
	MERCURY	12	8	4	12	7	5	11	6	5	12	2	0
	MANGANESE	12	12	0	11	4	7	22	22	0	24	24	0
	MOLYBDENUM	12	12	0	11	11	0	22	22	0	24	24	0
	NICKEL	12	1	9	11	1	8	22	1	16	24	2	17
	LEAD	12	4	8	11	2	9	22	22	0	24	15	9
	ANTIMONY	12	9	3	11	9	2	22	20	2	24	22	2
	SELENIUM	11	0	10	10	0	8	20	0	17	22	0	20
	STRONTIUM	12	12	0	11	11	0	22	22	0	24	24	0
	TITANIUM	12	11	1	11	10	1	22	19	3	24	22	2
	THALLIUM	12	0	7	11	0	4	22	0	10	24	0	10
	URANIUM	12	12	0	11	11	0	22	22	0	24	24	0
	VANADIUM	12	0	12	11	0	11	22	0	22	24	0	24
	ZINC	12	12	0	11	9	2	22	22	0	24	24	0
*TOTAL SCAN METALS		285	148	106	262	123	101	513	297	157	560	308	170
*TOTAL GROUP INORGANIC & PHYSICAL		565	381	131	579	370	140	998	735	182	1078	763	207
CHLOROAROMATICS	HEXACHLOROBUTADIENE	12	0	0	12	0	0	11	0	0	11	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
CHLOROAROMATICS	123 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	1234 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	1235 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	124 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	1245 T-CHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	135 TRICHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	HCB	12	0	0	12	0	0	11	0	0	11	0	0
	HEXACHLOROETHANE	12	0	0	12	0	1	11	0	3	11	0	2
	OCTACHLOROSTYRENE	12	0	0	12	0	0	11	0	0	11	0	0
	PENTACHLOROBENZENE	12	0	0	12	0	0	11	0	0	11	0	0
	236 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0	11	0	0
	245 TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0	11	0	0
	26A TRICHLOROTOLUENE	12	0	0	12	0	0	11	0	0	11	0	0
*TOTAL SCAN CHLOROAROMATICS		168	0	0	168	0	1	154	0	3	154	0	2
CHLOROPHENOLS	234 TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2345 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	2356 T-CHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	245-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	246-TRICHLOROPHENOL	2	0	0	2	0	0	.	.	.	.	.	.
	PENTACHLOROPHENOL	2	0	1	2	0	0	.	.	.	.	.	.
*TOTAL SCAN CHLOROPHENOLS		12	0	1	12	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PAH	PHENANTHRENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHRACENE	12	0	0	12	0	0	.	.	.	.	.	.
	FLUORANTHENE	12	0	0	12	0	0	.	.	.	.	.	.
	PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(A)ANTHRACENE	12	0	0	12	0	0	.	.	.	.	.	.
	CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	DIMETH. BENZ(A)ANTHR	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(E) PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(J) FLUORANTHEN	0	0	0	0	0	0	.	.	.	.	.	.
	BENZO(B) FLUORANTHEN	12	0	0	12	0	0	.	.	.	.	.	.
	PERYLENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(K) FLUORANTHEN	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(A) PYRENE	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(G,H,I) PERYLEN	12	0	0	12	0	0	.	.	.	.	.	.
	DIBENZO(A,H) ANTHRAC	12	0	0	12	0	0	.	.	.	.	.	.
	INDENO(1,2,3-C,D) PY	12	0	0	12	0	0	.	.	.	.	.	.
	BENZO(B) CHRYSENE	12	0	0	12	0	0	.	.	.	.	.	.
	ANTHANTHRENE	0	0	0	0	0	0	.	.	.	.	.	.
	CORONENE	12	0	0	12	0	0	.	.	.	.	.	.
*TOTAL SCAN PAH		204	0	0	204	0	0	0	0	0	0	0	0
PESTICIDES & PCB	ALDRIN	12	0	0	12	0	0	11	0	0	11	0	0
	ALPHA BHC	12	0	7	12	0	8	11	0	7	11	0	8

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	BETA BHC	12	0	1	12	0	2	11	0	0	11	0	0
	LINDANE	12	0	2	12	0	2	11	0	1	11	0	1
	ALPHA CHLORDANE	12	0	0	12	0	0	11	0	0	11	0	0
	GAMMA CHLORDANE	12	0	0	12	0	0	11	0	0	11	0	0
	DIELDRIN	12	0	0	12	0	0	11	0	0	11	0	0
	METHOXYCHLOR	12	0	0	12	0	0	11	0	0	11	0	0
	ENDOSULFAN I	12	0	0	12	0	0	11	0	0	11	0	0
	ENDOSULFAN II	12	0	0	12	0	0	11	0	0	11	0	0
	ENDRIN	12	0	0	12	0	0	11	0	0	11	0	0
	ENDOSULFAN SULPHATE	12	0	0	12	0	0	11	0	0	11	0	0
	HEPTACHLOR EPOXIDE	12	0	0	12	0	0	11	0	0	11	0	0
	HEPTACHLOR	12	0	0	12	0	0	11	0	0	11	0	0
	MIREX	12	0	0	12	0	0	11	0	0	11	0	0
	OXYCHLORDANE	12	0	0	12	0	0	11	0	0	11	0	0
	OPDDT	12	0	0	12	0	0	11	0	0	11	0	0
	PCB	12	0	0	12	0	0	11	0	0	11	0	0
	DDD	12	0	0	12	0	0	11	0	0	11	0	0
	PPDDE	12	0	0	12	0	0	11	0	0	11	0	0
	PPDDT	12	0	0	12	0	0	11	0	0	11	0	0
	AMETRINE	12	0	0	11	0	0	11	0	0	12	0	0
	ATRAZINE	12	0	0	11	0	0	11	0	0	12	0	0
	ATRATONE	12	0	0	11	0	0	11	0	0	12	0	0
	CYANAZINE	12	0	0	11	0	0	11	0	0	12	0	0
	DES ETHYL ATRAZINE	6	0	0	5	0	0	5	0	0	6	0	0
	DES ETHYL SIMAZINE	6	0	0	5	0	0	5	0	0	6	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
PESTICIDES & PCB	PROMETONE	12	0	0	11	0	0	11	0	0	12	0	0
	PROPAZINE	12	0	0	11	0	0	11	0	0	12	0	0
	PROMETRYNE	12	0	0	11	0	0	11	0	0	12	0	0
	METRIBUZIN	12	0	0	11	0	0	11	0	0	12	0	0
	SIMAZINE	12	0	0	11	0	0	11	0	0	12	0	0
	ALACHLOR	12	0	0	11	0	0	11	0	0	12	0	0
	METOLACHLOR	12	0	0	11	0	0	11	0	0	12	0	0
*TOTAL SCAN PESTICIDES & PCB		396	0	10	383	0	12	362	0	8	375	0	9
PHENOLICS	PHENOLICS	12	2	4	12	2	5	.	.	.	.	.	.
*TOTAL SCAN PHENOLICS		12	2	4	12	2	5	0	0	0	0	0	0
SPECIFIC PESTICIDES	TOXAPHENE	0	0	0	0	0	0	0	0	0	0	0	0
	2,4,5-T	2	0	0	2	0	0	.	.	.	.	.	.
	2,4-D	2	0	0	2	0	0	.	.	.	.	.	.
	24DCHLRPHENOXYBUTYRC	2	0	0	2	0	0	.	.	.	.	.	.
	2,4 D PROPIONIC ACID	2	0	0	2	0	0	.	.	.	.	.	.
	DICAMBA	2	0	0	2	0	0	.	.	.	.	.	.
	PICHLORAM	0	0	0	0	0	0	.	.	.	.	.	.
	SILVEX	2	0	0	2	0	0	.	.	.	.	.	.
	DIAZINON	2	0	0	2	0	0	.	.	.	.	.	.

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
SPECIFIC PESTICIDES	DICHLOROVOS	2	0	0	2	0	0	.	.	.	.	.	.
	CHLORPYRIFOS	2	0	0	2	0	0	.	.	.	.	.	.
	ETHION	2	0	0	2	0	0	.	.	.	.	.	.
	AZINPHOS-METHYL	0	0	0	0	0	0	.	.	.	.	.	.
	MALATHION	2	0	0	2	0	0	.	.	.	.	.	.
	MEVINPHOS	2	0	0	2	0	0	.	.	.	.	.	.
	METHYL PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	METHYLTRITHION	2	0	0	2	0	0	.	.	.	.	.	.
	PARATHION	2	0	0	2	0	0	.	.	.	.	.	.
	PHORATE	2	0	0	2	0	0	.	.	.	.	.	.
	RELDAN	2	0	0	2	0	0	.	.	.	.	.	.
	RONNEL	2	0	0	2	0	0	.	.	.	.	.	.
	AMINOCARB	0	0	0	0	0	0	.	.	.	.	.	.
	BENOMYL	2	0	0	2	0	0	.	.	.	.	.	.
	BUX	2	0	0	2	0	0	.	.	.	.	.	.
	CARBOFURAN	2	0	0	2	0	0	.	.	.	.	.	.
	CICP	2	0	0	2	0	0	.	.	.	.	.	.
	DIALLATE	2	0	0	2	0	0	.	.	.	.	.	.
	EPTAM	2	0	0	2	0	0	.	.	.	.	.	.
	IPC	2	0	0	2	0	0	.	.	.	.	.	.
	PROPOXUR	2	0	0	2	0	0	.	.	.	.	.	.
	CARBARYL	2	0	0	2	0	0	.	.	.	.	.	.
	BUTYLATE	2	0	0	2	0	0	.	.	.	.	.	.
*TOTAL SCAN SPECIFIC PESTICIDES		56	0	0	56	0	0	0	0	0	0	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	BENZENE	10	0	0	10	0	1	9	0	0	10	0	0
	TOLUENE	10	0	1	10	0	1	9	0	0	10	0	0
	ETHYLBENZENE	10	0	4	10	0	6	9	0	2	10	0	1
	P-XYLENE	10	0	0	10	0	0	9	0	0	10	0	0
	M-XYLENE	10	0	0	10	0	1	9	0	0	10	0	0
	O-XYLENE	10	0	0	10	0	1	9	0	0	10	0	0
	STYRENE	3	1	1	3	1	2	3	0	3	3	0	3
	1,1 DICHLOROETHYLENE	10	0	0	10	0	0	9	0	0	10	0	0
	METHYLENE CHLORIDE	10	0	0	10	0	0	9	0	0	10	0	0
	T1,2DICHLOROETHYLENE	10	0	0	10	0	0	9	0	0	10	0	0
	1,1 DICHLOROETHANE	10	0	0	10	0	0	9	0	0	10	0	0
	CHLOROFORM	10	2	1	10	10	0	9	9	0	10	10	0
	111, TRICHLOROETHANE	10	0	1	10	0	0	9	0	0	10	0	0
	1,2 DICHLOROETHANE	10	0	0	10	0	0	9	0	0	10	0	0
	CARBON TETRACHLORIDE	10	0	0	10	0	0	9	0	0	10	0	0
	1,2 DICHLOROPROPANE	10	0	0	10	0	0	9	0	0	10	0	0
	TRICHLOROETHYLENE	10	0	0	10	0	0	9	0	0	10	0	0
	DICHLOROBROMOMETHANE	10	0	0	10	10	0	9	9	0	10	10	0
	112 TRICHLOROETHANE	10	0	0	10	0	0	9	0	0	10	0	0
	CHLORODIBROMOMETHANE	10	0	0	10	10	0	9	9	0	10	10	0
	T-CHLOROETHYLENE	10	0	0	10	0	1	9	0	1	10	0	0
	BROMOFORM	10	0	0	10	0	8	9	0	7	10	0	9
	1122 T-CHLOROETHANE	10	0	0	10	0	0	9	0	0	10	0	0
	CHLOROBENZENE	10	0	0	10	0	0	9	0	0	10	0	0
	1,4 DICHLOROBENZENE	10	0	0	10	0	1	9	0	0	10	0	0

TABLE 4

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON

SUMMARY TABLE OF RESULTS (1988)

SCAN	PARAMETER	SITE RAW TOTAL	RAW POSITIVE	RAW TRACE	TREATED TOTAL	TREATED POSITIVE	TREATED TRACE	SITE 1 TOTAL	SITE 1 POSITIVE	SITE 1 TRACE	SITE 2 TOTAL	SITE 2 POSITIVE	SITE 2 TRACE
VOLATILES	1,3 DICHLOROBENZENE	10	0	0	10	0	0	9	0	0	10	0	0
	1,2 DICHLOROBENZENE	10	0	0	10	0	0	9	0	0	10	0	0
	TRIFLUOROCHLOROTOLUE	4	0	0	4	0	0	4	0	0	4	0	0
	ETHLYENE DIBRONIDE	10	0	0	10	0	0	9	0	0	10	0	0
	TOTL TRIHALOMETHANES	10	1	1	10	10	0	9	9	0	10	10	0
*TOTAL SCAN VOLATILES		287	4	9	287	41	22	259	36	13	287	40	13
*TOTAL GROUP ORGANIC		1135	6	24	1122	43	40	775	36	24	816	40	24
TOTAL		1742	419	155	1743	422	180	1811	781	206	1937	813	231

KEY TO TABLE 5 and 6

A ONTARIO DRINKING WATER OBJECTIVES (ODWO)
1. Maximum Acceptable Concentration (MAC)
1+. MAC for Total Trihalomethanes
1*. MAC for Bacteriological Analyses
Poor water quality is indicated when :
- total coliform counts > 0 < 5
- P/A Bottle Test is present after 48 hours
- Aeromonas organisms are detected in more than 25% of samples in a single submission or in successive submissions from the same sampling site
- Pseudomonas Aeruginosa, Staphylococcus Aureus and members of the Fecal Streptococcus group should not be detected in any sample
- Standard Plate Count should not exceed 500 organisms per ml at 35 ^{0}C within 48 hours

2. Interim Maximum Acceptable Concentration (IMAC)
3. Maximum Desirable Concentration (MDC)
4. Aesthetic or Recommended Operational Guideline
- hardness levels between 80 and 100 mg/L as calcium carbonate are considered to provide an acceptable balance between corrosion and incrustation, water supplies with a hardness >200 mg/L are considered poor and those in excess of 500 mg/L are unacceptable.

B HEALTH & WELFARE CANADA (H&W)
1. Maximum Acceptable Concentration (MAC)
2. Proposed MAC
3. Interim MAC
4. Aesthetic Objective (AO) (for xylenes, the AO is a total)

C WORLD HEALTH ORGANIZATION (WHO)
1. Guideline Value (GV)
2. Tentative GV
3. Aesthetic GV

D US ENVIRONMENTAL PROTECTION AGENCY (EPA)
1. Maximum Contaminant Level (MCL)
2. Suggested No-Adverse Effect Level (SNAEL)
3. Lifetime Health Advisory
4. EPA Ambient Water Quality Criteria

F EUROPEAN ECONOMIC COMMUNITY (EEC)
1. Health Related Guideline Level
2. Aesthetic Guideline Level
3. Maximum Admissable Concentration (MADC)

G CALIFORNIA STATE DEPARTMENT OF HEALTH-GUIDELINE VALUE

H USSR MAXIMUM PERMISSIBLE CONCENTRATION

I NEW YORK STATE AMBIENT WATER GUIDELINE

N/A NONE AVAILABLE

INTERPRETATION OF DATA

The interpretation of analytical results that are obtained from measurements near the limit of detection of the measurement process is subject to greater uncertainty than those at higher concentrations. The principle areas of concern relate to whether the substance has actually been detected, whether it has been properly identified, and whether it is an artifact of the measurement process. In other words, false positives can be caused by the instrumentation or the test procedures used, when in fact these compounds are not present in the sample.

There are several methods to treat data from such measurements:
1. Exclude the low-level data because of this uncertainty factor. However, studies of long-term environmental trends and modelling may be adversely affected by exclusion of such data.
2. Qualify these data so the user is aware of the greater uncertainty associated with their use.

For the Drinking Water Surveillance Program, measurements near the limit of detection of the measurement process are reported qualified by the code "<T". Results quantified by "W" indicate a zero measurement. These results are reported for purposes of modelling and long-term trend analysis and no significance should be attributed to a single determination of a substance below "T" (a single determination may well be a false positive). Repeat analysis or additional data are needed before it can be stated with certainty that the substance in question was truly present. On the other hand, it is less likely that repeated detection of a substance at or near the limit of detection at a specific location is solely due to an artifact in the measurement system, and more likely represents a true positive. However the average of such data is still only an estimate of the amount of substance present subject to the possible biases of the method used.

LABORATORY RESULTS, REMARK DESCRIPTIONS

.	No Sample Taken
BDL	Below Minimum Measurable Amount
<T	Greater Than Detection Limit But Not Confident (SEE INTERPRETATION OF RESULTS ABOVE)
>	Results Are Greater Than The Upper Limit
<=>	Approximate Result
!AW	No Data: Analysis Withdrawn
!CR	No Data: Could Not Confirm By Reanalysis
!CS	No Data: Contamination Suspected
!IL	No Data: Sample Incorrectly Labelled
!IS	No Data: Insufficient Sample
!LA	No Data: Laboratory Accident

!LD	No Data: Test Queued After Sample Discarded
!NA	No Data: No Authorization To Perform Reanalysis
!NP	No Data: No Procedure
!NR	No Data: Sample Not Received
!OP	No Data: Obscured Plate
!QU	No Data: Quality Control Unacceptable
!PE	No Data: Procedural Error - Sample Discarded
!PH	No Data: Sample pH Outside Valid Range
!RE	No Data: Received Empty
!RO	No Data: See Attached Report (no numeric results)
!SM	No Data: Sample Missing
!SS	No Data: Send Separate Sample Properly Preserved
!UI	No Data: Indeterminant Interference
!TX	No Data: Time Expired
A3C	Approximate, Total Count Exceeded 300 Colonies
APL	Additional Peak, Large, Not Priority Pollutant
APS	Additional Peak, Less Than, Not Priority Pollutant
CIC	Possible Contamination, Improper Cap
CRO	Calculated Result Only
PPS	Test Performed On Preserved Sample
RMP	P and M-Xylene Not Separated
RRV	Rerun Verification
RVU	Reported Value Unusual
SPS	Several Peaks, Small, Not Priority Pollutant
UAL	Unreliable: Sample Age Exceeds Normal Limit
UCR	Unreliable: Could Not Confirm By Reanalysis
UCS	Unreliable: Contamination Suspected
UIN	Unreliable: Indeterminant Interference
XP	Positive After X Number of Hours
T# (T06)	Result Taken After # Hours

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
BACTERIOLOGICAL						
FECAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 0 (A1)	
JAN	0	.	.	.	.	.
FEB	0	.	.	.	.	.
MAR	0	.	.	.	.	.
APR	0	.	.	.	.	.
MAY	0	.	.	.	.	.
JUN	47	.	.	.	.	.
JUL	BDL	.	.	.	.	.
AUG	6	.	.	.	.	.
SEP	2	.	.	.	.	.
OCT	1	.	.	.	.	.
NOV	0 T24	.	.	.	.	.
DEC	0 T24	.	.	.	.	.
STANDRD PLATE CNT MF (CT/ML)			DET'N LIMIT = 0		GUIDELINE = 500/ML (A1)	
JAN	18	1	.	1	.	1
FEB	!OP	4	.	!LA	.	!LA
MAR	212	2	.	3	.	2
APR	107	19	.	12	.	6
MAY	21	5	.	13	.	1
JUN	1600	3	.	16	.	2
JUL	320	0	.	.	.	4
AUG	!OP	12	.	600	.	51
SEP	.	0	.	!AW	.	9
OCT	.	3 <=>	.	21 T24	.	0 <=>
NOV	.	3 <=>	.	0 <=>	.	5 <=>
DEC	.	0 <=>	.	1 <=>	.	0 <=>
P/A BOTTLE ( )			DET'N LIMIT = 0		GUIDELINE = 0 (A1*)	
JAN	.	0	.	0	.	0
FEB	.	0	.	0	.	0
MAR	.	0	.	0	.	0
APR	.	0	.	0	.	0
MAY	.	0	.	0	.	0
JUN	.	0	.	0	.	0
JUL	.	0	.	.	.	0
AUG	.	0	.	0	.	0
TOTAL COLIFORM MF (CT/100ML)			DET'N LIMIT = 0		GUIDELINE = 5/100ML(A1)	
JAN	7	0	.	0	.	0
FEB	54 A3C	0	.	0	.	0
MAR	18 A3C	0	.	0	.	0

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE TYPE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	28	0	.	0	.	0
MAY	BDL	0	.	0	.	0
JUN	2700 A3C	!LA	.	0	.	0
JUL	2	0	.	.	.	0
AUG	1600 A3C	0	.	0	.	0
SEP	20	0	.	0	.	0
OCT	14 <=>	0 T24	.	0 T24	.	0 T24
NOV	260 T24	0 T48	.	0 T48	.	0 T24
DEC	78 T24	0 T24	.	0 T24	.	0 T24
T COLIFORM BCKGRD MF (CT/100ML)		DET'N LIMIT = 0		GUIDELINE = N/A		
JAN	190	0	.	0	.	0
FEB	1200	0	.	0	.	0
MAR	1600	0	.	0	.	0
APR	138	1	.	0	.	0
MAY	12	0	.	0	.	0
JUN	50000	!LA	.	11	.	0
JUL	64	0	.	.	.	0
AUG	10000	0	.	2	.	1
SEP	650	0	.	0	.	1
OCT	2486	3 T24	.	1 T24	.	0 T24
NOV	160 T24	0 T48	.	0 T48	.	0 T24
DEC	480 T24	0 T24	.	0 T24	.	0 T24

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM		
SITE TYPE	RAW	TREATED	SITE 1	SITE 2	
			STANDING FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (FLD)					
FLD CHLORINE (COMB) ( )		DET'N LIMIT = N/A	GUIDELINE = N/A		
JAN	.	.160	. .100	.	.100
FEB	.	.150	. .100	.	.100
MAR	.	.150	. .	.	.100
APR	.	.140	.100 .100	.	.100
MAY	.	.100	.100 .100	.	.100
JUN	.	.190	.100 .100	.100	.100
JUL	.	.170	. .	.	.100
AUG	.	.160	.100 .200	.	.100
SEP	.	.160	.100 .100	.	.100
OCT	.	.190	.100 .100	.	.100
NOV	.	.160	.100 .100	.100	.100
DEC	.	.150	.100 .150	.100	.100
FLD CHLORINE FREE ( )		DET'N LIMIT = N/A	GUIDELINE = N/A		
JAN	.	.330	. .	.	.
FEB	.	.360	. .	.	.
MAR	.	.330	. .	.	.
APR	.	.340	. .100	.	.
MAY	.	.240	. .100	.	.
JUN	.	.400	. .	.	.
JUL	.	.230	. .	.	.
AUG	.	.480	. .	.	.
SEP	.	.320	. .100	.	.
OCT	.	.350	. .100	.	.
NOV	.	.420	. .100	.	.
DEC	.	.350	. .	.	.
FLD CHLORINE (TOTAL) ( )		DET'N LIMIT = N/A	GUIDELINE = N/A		
JAN	.	.490	. .100	.	.100
FEB	.	.510	. .100	.	.100
MAR	.	.480	. .	.	.100
APR	.	.480	.100 .200	.	.100
MAY	.	.400	.100 .200	.	.100
JUN	.	.590	.100 .100	.100	.100
JUL	.	.500	. .	.	.100
AUG	.	.620	.100 .200	.	.100
SEP	.	.480	.100 .200	.	.100
OCT	.	.540	.100 .200	.	.100
NOV	.	.580	.100 .200	.100	.100
DEC	.	.500	.100 .150	.100	.100
FLD PH (DMNSLESS)		DET'N LIMIT = N/A	GUIDELINE = 6.5-8.5(A4)		

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	8.000	7.900	7.700	7.600	7.600	7.500
FEB	8.100	7.900	7.600	7.600	7.800	7.600
MAR	8.000	7.800	.	.	7.800	7.600
APR	8.100	7.800	7.600	7.600	7.600	7.600
MAY	8.100	7.900	7.600	7.600	7.600	7.600
JUN	8.000	7.800	7.500	7.500	7.600	7.400
JUL	8.200	7.700	.	.	7.600	7.600
AUG	8.200	7.700	7.600	7.600	7.600	7.600
SEP	8.200	7.800	7.600	7.600	7.600	7.600
OCT	8.200	7.600	7.800	7.800	7.800	7.800
NOV	6.800	8.000	7.800	7.800	7.800	7.600
DEC	8.300	8.000	7.800	7.500	7.600	7.600
FLD TEMPERATURE (DEG.C)			DET'N LIMIT = N/A		GUIDELINE = 15 (A1)	
JAN	2.000	1.800	9.000	7.000	10.500	7.500
FEB	1.000	2.000	10.000	6.000	10.500	5.500
MAR	.	.500	.	.	10.000	5.000
APR	2.000	2.200	11.000	7.000	10.000	6.500
MAY	6.500	8.000	13.000	9.000	12.000	9.000
JUN	9.000	8.500	14.000	13.000	15.000	12.500
JUL	12.000	14.000	.	.	17.000	15.000
AUG	15.000	20.000	20.000	18.000	20.500	18.500
SEP	20.500	21.000	19.500	19.500	19.000	19.500
OCT	17.000	16.500	18.000	18.000	18.000	18.000
NOV	10.000	10.500	15.000	12.500	15.000	13.000
DEC	6.000	6.500	12.000	10.500	12.500	10.000
FLD TURBIDITY (FTU)			DET'N LIMIT = N/A		GUIDELINE = 1.0 (A1)	
JAN	.900	.090	.100	.080	.090	.070
FEB	.600	.060	.090	.070	.090	.060
MAR	.550	.060	.	.	.	.
APR	.690	.080	.	.	.	.
MAY	.650	.060	.080	.070	.090	.080
JUN	.650	.070	.110	.100	.100	.090
JUL	.550	.080	.	.	.	.
AUG	1.400	.080	.	.	.	.
SEP	.850	.090	.	.	.	.
OCT	.650	.080	.	.	.	.
NOV	.750	.090	.	.	.	.
DEC	.	.080	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
CHEMISTRY (LAB)						
ALKALINITY (MG/L)			DET'N LIMIT = .200		GUIDELINE = 30-500 (A4)	
JAN	128.000	91.400	93.200	92.400	93.900	92.900
FEB	112.200	91.900	94.600	93.400	94.000	93.700
MAR	115.100	98.300	97.200	97.100	97.700	97.500
APR	130.500	95.600	96.900	97.200	96.500	96.900
MAY	111.300	98.400	99.200	99.100	97.700	98.100
JUN	141.800	96.700	97.200	96.800	97.800	98.000
JUL	103.500	95.400	.	.	97.000	97.100
AUG	106.100	101.600	97.900	98.100	98.000	100.300
SEP	91.800	84.200	85.500	86.100	86.500	86.700
OCT	96.500	91.200	91.700	91.400	91.200	91.300
NOV	98.200	92.300	93.000	92.600	93.300	93.500
DEC	99.100	93.300	93.800	94.500	94.100	93.800
CALCIUM (MG/L)			DET'N LIMIT = .100		GUIDELINE = 100 (F2)	
JAN	51.800	39.000	39.000	39.600	38.600	38.800
FEB	45.200	38.800	40.200	40.600	40.400	40.400
MAR	45.800	41.600	41.200	41.200	42.000	41.800
APR	51.400	40.000	38.600	39.600	40.600	40.200
MAY	43.000	40.800	40.400	40.200	41.200	40.000
JUN	54.800	40.000	39.800	39.800	40.000	40.000
JUL	41.000	39.200	.	.	39.400	39.400
AUG	41.800	41.500	41.300	40.100	41.800	41.500
SEP	37.600	37.600	37.800	36.800	38.000	38.600
OCT	37.000	37.200	37.400	37.600	38.600	37.600
NOV	38.800	38.600	38.400	38.400	38.400	39.000
DEC	39.800	37.800	37.400	37.000	36.600	37.000
CYANIDE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = .200 (A1)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	115	.	115	.	.003 <T
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
CHLORIDE (MG/L)			DET'N LIMIT = .200		GUIDELINE = 250 (A3)	

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	24.500	23.500	23.700	24.000	23.500	23.500
FEB	24.600	24.200	24.400	24.200	24.200	24.100
MAR	24.300	23.500	23.900	23.700	23.600	23.800
APR	27.000	23.100	23.100	23.000	23.200	23.100
MAY	19.600	21.000	21.300	21.900	22.800	22.800
JUN	24.100	23.100	22.600	22.500	21.700	22.600
JUL	21.900	23.400	.	.	23.400	23.300
AUG	21.300	23.300	23.600	22.300	23.400	23.300
SEP	22.300	23.900	23.800	23.800	23.700	23.800
OCT	22.100	23.300	23.700	23.500	23.500	23.400
NOV	22.300	23.600	23.500	23.500	23.700	23.700
DEC	22.100	23.300	23.300	23.100	23.400	23.300
COLOUR (HZU)		DET'N LIMIT = .5		GUIDELINE = 5.0 (A3)		
JAN	1.000 <T	.500 <T	2.500	3.000	2.000 <T	2.500
FEB	2.000 <T	.500 <T	3.000	3.500	4.000	2.000 <T
MAR	2.500	1.000 <T	2.500	3.000	3.000	3.500
APR	2.500	1.000 <T	2.500	3.000	2.500	2.500
MAY	6.000	1.500 <T	3.000	4.000	3.500	3.500
JUN	4.000	1.500 <T	3.500	4.500	3.500	3.500
JUL	3.000	1.000 <T	.	.	2.000 <T	2.000 <T
AUG	3.000	1.000 <T	2.500	3.500	2.500	2.500
SEP	2.000 <T	1.000 <T	3.000	2.500	3.500	3.500
OCT	2.000 <T	1.000 <T	3.000	3.500	3.000	2.500
NOV	1.500 <T	.500 <T	4.000	4.500	1.500 <T	1.500 <T
DEC	1.500 <T	.500 <T	2.500	3.000	1.000 <T	1.000 <T
CONDUCTIVITY (UMHO/CM)		DET'N LIMIT = 1		GUIDELINE = 400 (F2)		
JAN	387	318	331	328	332	328
FEB	356	323	329	326	328	327
MAR	356	331	332	330	330	331
APR	389	319	319	320	320	321
MAY	328	315	321	322	324	327
JUN	417	329	329	328	327	327
JUL	316	318	.	.	307	312
AUG	329	341	330	331	330	337
SEP	309	314	312	311	313	315
OCT	315	318	320	319	318	319
NOV	317	320	322	321	322	323
DEC	318	320	319	323	323	322
FLUORIDE (MG/L)		DET'N LIMIT = .01		GUIDELINE = 2.400 (A1)		
JAN	.140	.100	.100	.100	.100	.100

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	.140	.100	.120	.120	.120	.100
MAR	.110	.100	.100	.090	.110	.100
APR	.140	.120	.120	.120	.120	.120
MAY	.120	.100	.110	.100	.100	.110
JUN	.150	.100	.100	.110	.110	.100
JUL	.130	.110	.	.	.130	.120
AUG	.130	.110	.120	.110	.120	.120
SEP	.120	.100	.100	.120	.100	.100
OCT	.120	.120	.120	.120	.120	.120
NOV	.120	.140	.120	.120	.120	.140
DEC	.120	.120	.100	.120	.120	.120
HARDNESS (MG/L)			DET'N LIMIT = .500		GUIDELINE = 80-100 (A4)	
JAN	171.000	132.000	131.000	133.000	130.000	131.000
FEB	151.000	130.000	136.000	136.000	134.000	136.000
MAR	152.000	138.000	137.000	137.000	139.000	138.000
APR	169.000	133.000	129.000	132.000	135.000	133.000
MAY	137.000	131.000	130.000	131.000	134.000	130.000
JUN	178.000	132.000	131.000	132.000	132.000	131.000
JUL	136.000	131.000	.	.	132.000	133.000
AUG	138.000	136.900	135.600	133.000	137.600	136.900
SEP	128.000	128.000	129.000	126.000	128.000	130.000
OCT	126.000	128.000	127.000	129.000	130.000	128.000
NOV	133.000	133.000	132.000	130.000	132.000	133.000
DEC	135.000	132.000	131.000	128.000	127.000	128.000
IONCAL (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
FEB	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
MAR	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
APR	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
MAY	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
JUN	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF	.000 MAF
JUL	.000 MAF	.000 MAF	.	.	.000 MAF	.000 MAF
AUG	1.436	4.035	2.705	2.471	1.121	2.899
SEP	1.965	1.696	2.556	.592	.737	2.884
OCT	2.297	1.087	3.702	1.836	.598	2.865
NOV	.955	1.300	.191	.532	.143	.277
DEC	.591	3.034	5.889	5.081	5.531	4.505
LANGELIERS INDEX (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = N/A	
JAN	.382 MAF	.009 MAF	.206 MAF	.269 MAF	.265 MAF	.223 MAF
FEB	.418 MAF	.249 MAF	.426 MAF	.365 MAF	.175 MAF	.164 MAF

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
MAR	.495 NAF	.217 NAF	.098 NAF	.118 NAF	.199 NAF	.216 NAF
APR	.607 NAF	.249 NAF	.280 NAF	.242 NAF	.270 NAF	.237 NAF
MAY	.556 NAF	.391 NAF	.340 NAF	.357 NAF	.371 NAF	.340 NAF
JUN	.938 NAF	.473 NAF	.483 NAF	.522 NAF	.448 NAF	.439 NAF
JUL	.365 NAF	.220 NAF	.	.	.210 NAF	.210 NAF
AUG	.403	.340	.282	.250	.318	.294
SEP	.226	.138	.087	.138	.124	.132
OCT	.250	.247	.162	.223	.273	.162
NOV	.458	.339	.139	.128	.161	.168
DEC	.443	.374	.222	.350	.273	.247
MAGNESIUM (MG/L)			DET'N LIMIT = .050		GUIDELINE = 30 (F2)	
JAN	10.100	8.400	8.300	8.300	8.200	8.300
FEB	9.300	8.200	8.600	8.400	8.000	8.400
MAR	9.100	8.400	8.200	8.300	8.300	8.100
APR	9.900	8.100	7.800	8.100	8.000	8.000
MAY	7.200	7.100	7.200	7.400	7.600	7.400
JUN	10.000	7.800	7.700	7.900	7.800	7.600
JUL	8.100	8.200	.	.	8.200	8.300
AUG	8.200	8.100	7.900	8.000	8.100	8.100
SEP	8.400	8.400	8.300	8.200	8.000	8.300
OCT	8.300	8.500	8.100	8.500	8.300	8.200
NOV	8.800	8.900	8.700	8.300	8.700	8.600
DEC	8.700	9.000	9.100	8.600	8.700	8.700
SODIUM (MG/L)			DET'N LIMIT = .200		GUIDELINE = 200 (C3)	
JAN	13.200	12.200	12.000	12.200	12.000	12.000
FEB	12.800	12.200	11.800	11.800	11.800	11.800
MAR	12.000	11.600	11.800	11.800	11.800	11.400
APR	13.600	12.000	11.600	12.200	12.200	12.200
MAY	9.600	10.000	10.400	10.400	11.000	10.200
JUN	12.600	11.000	11.000	11.000	11.000	10.800
JUL	11.600	11.600	.	.	11.600	11.800
AUG	11.200	11.400	11.400	11.600	11.400	11.200
SEP	11.800	11.600	12.200	12.000	11.600	12.000
OCT	12.000	12.200	11.400	11.600	11.600	11.200
NOV	11.600	11.800	11.600	11.800	12.000	11.800
DEC	12.000	11.600	11.400	11.800	12.000	11.800
AMMONIUM TOTAL (MG/L)			DET'N LIMIT = 0.002		GUIDELINE = .05 (F2)	
JAN	.006 <T	.008 <T	.008 <T	.008 <T	.008 <T	.006 <T
FEB	.006 <T	.008 <T	.012	.010	.012	.008 <T
MAR	.006 <T	.004 <T	.004 <T	.004 <T	.006 <T	.004 <T

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	.024	.016	.014	.016	.020	.014
MAY	.044	.018	.022	.022	.022	.020
JUN	.012	.012	.016	.014	.016	.012
JUL	.016	.012	.	.	.012	.010
AUG	.024	.020	.048	.032	.022	.022
SEP	.008 <T	.004 <T	.004 <T	.004 <T	.012	.002 <T
OCT	.024	.012	.010	.012	.016	.012
NOV	.014	.010	.004 <T	.008 <T	.012	.006 <T
DEC	.020	.012	.010	.012	.012	.012
NITRITE (MG/L)			DET'N LIMIT = 0.001		GUIDELINE = 1.000 (A1)	
JAN	.001 <T	BDL	.001 <T	.001 <T	.001 <T	BDL
FEB	.001 <T	BDL	.002 <T	.001 <T	.001 <T	.001 <T
MAR	.002 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T
APR	.002 <T	.001 <T	.001 <T	.001 <T	.001 <T	.001 <T
MAY	.004 <T	.002 <T	.003 <T	.002 <T	.002 <T	.001 <T
JUN	.002 <T	.001 <T	.001 <T	.001 <T	.002 <T	.001 <T
JUL	.004 <T	.001 <T	.	.	.002 <T	.002 <T
AUG	.007	.002 <T	.007	.005	.002 <T	.002 <T
SEP	BDL	BDL	.003 <T	.003 <T	.003 <T	.002 <T
OCT	.005	.004 <T	.004 <T	.006	.006	.008
NOV	.013	.008	.005	.005	.006	.003 <T
DEC	.002 <T	.001 <T	.004 <T	.002 <T	.002 <T	.002 <T
TOTAL NITRATES (MG/L)			DET'N LIMIT = .020		GUIDELINE = 10.000 (A1)	
JAN	.305	.275	.295	.280	.260	.270
FEB	.300	.295	.315	.280	.285	.285
MAR	.355	.335	.350	.340	.335	.335
APR	.605	.315	.325	.315	.320	.320
MAY	.315	.305	.330	.285	.295	.305
JUN	.560	.275	.300	.280	.290	.285
JUL	.315	.250	.	.	.270	.265
AUG	.330	.290	.325	.255	.275	.260
SEP	.120	.115	.145	.125	.135	.140
OCT	.140	.125	.150	.140	.135	.135
NOV	.215	.210	.230	.205	.210	.200
DEC	.250	.235	.260	.225	.225	.220
NITROGEN TOT KJELD (MG/L)			DET'N LIMIT = .020		GUIDELINE = N/A	
JAN	.150	.150	.160	.150	.180	.150
FEB	.210	.150	.160	.170	.190	.170
MAR	.170	.140	.140	.140	.150	.130
APR	.270	.180	.170	.180	.180	.180

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	.280	.160	.140	.150	.180	.130
JUN	.230	.190	.170	.190	.200	.180
JUL	.230	.160	.	.	.180	.160
AUG	.250	.170	.160	.200	.210	.180
SEP	.240	.170	.140	.160	.170	.200
OCT	.220	.140	.110	.130	.070 <T	.130
NOV	.220	.160	.140	.130	.150	.130
DEC	.230	.170	.170	.170	.170	.160
PH (DIMNSLESS)			DET'N LIMIT = N/A		GUIDELINE = 6.5-8.5(A4)	
JAN	8.010	7.900	8.090	8.150	8.150	8.110
FEB	8.160	8.140	8.290	8.230	8.040	8.030
MAR	8.220	8.050	7.940	7.960	8.030	8.050
APR	8.230	8.110	8.150	8.100	8.120	8.090
MAY	8.320	8.230	8.180	8.200	8.210	8.190
JUN	8.500	8.330	8.340	8.380	8.300	8.290
JUL	8.180	8.090	.	.	8.070	8.070
AUG	8.200	8.160	8.120	8.100	8.150	8.120
SEP	8.130	8.080	8.020	8.080	8.050	8.050
OCT	8.140	8.160	8.070	8.130	8.170	8.070
NOV	8.320	8.230	8.030	8.020	8.050	8.050
DEC	8.290	8.270	8.120	8.250	8.180	8.150
PHOSPHORUS FIL REACT (MG/L)			DET'N LIMIT = .0005		GUIDELINE = N/A	
JAN	.015	.002	.	.	.	.
FEB	.006	.002 <T	.	.	.	.
MAR	.008	.001 <T	.	.	.	.
APR	.007	.001 <T	.	.	.	.
MAY	.005	.001 <T	.	.	.	.
JUN	.016	.000 <T	.	.	.	.
JUL	.001 <T	.001 <T	.	.	.	.
AUG	.004	.002 <T	.	.	.	.
SEP	.000 <T	.000 <T	.	.	.	.
OCT	.004	.001 <T	.	.	.	.
NOV	BDL	BDL	.	.	.	.
DEC	.001 <T	.001 <T	.	.	.	.
PHOSPHORUS TOTAL (MG/L)			DET'N LIMIT = .002		GUIDELINE = .40 (F2)	
JAN	.016	BDL	.	.	.	.
FEB	.012	BDL	.	.	.	.
MAR	.010	BDL	.	.	.	.
APR	.013	BDL	.	.	.	.
MAY	.010	.002 <T	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	.022	BDL	.	.	.	.
JUL	.010	BDL	.	.	.	.
AUG	.008 <T	BDL	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	.009 <T	.002 <T	.	.	.	.
NOV	.005 <T	BDL	.	.	.	.
DEC	.008 <T	.002 <T	.	.	.	.
TOTAL SOLIDS (MG/L)		DET'N LIMIT = 1.		GUIDELINE = 500 (A3)		
JAN	252 CRO	206 CRO	215 CRO	213 CRO	216 CRO	213 CRO
SULPHATE ( )		DET'N LIMIT = .200		GUIDELINE = 500. (A3)		
AUG	26.420	31.490	31.250	30.530	31.070	30.660
SEP	26.350	31.460	30.340	29.470	30.250	30.190
OCT	26.900	30.300	30.200	30.600	30.600	30.300
NOV	25.320	29.060	29.020	28.850	29.320	29.130
DEC	28.000	33.000	33.000	32.000	32.500	32.000
TURBIDITY (FTU)		DET'N LIMIT = .02		GUIDELINE = 1.00 (A1)		
JAN	1.300	.100	.250	.270	.210	.240
FEB	.700	.050 <T	.360	.310	.410	.210
MAR	.460	.050	.240	.240	.230	.220
APR	.710	.120	.180	.320	.260	.210
MAY	.880	.170	.530	.340	.400	.340
JUN	.800	.070 <T	.360	.420	.340	.270
JUL	.710	.250	.	.	.460	.420
AUG	1.400	.200	.580	.610	.480	.580
SEP	.800	.290	.520	.510	.850	.840
OCT	.870	.360	.610	.690	.590	.660
NOV	1.010	.330	.840	.910	.340	.310
DEC	1.680	.310	.470	.680	.490	.370

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
METALS						
SILVER (UG/L)		DET'N LIMIT = .020		GUIDELINE = 50. (A1)		
JAN	BDL	BDL	.090 <T	.030 <T	.030 <T	BDL
FEB	BDL	!!S	.160 <T	.070 <T	.020 <T	BDL
MAR	.040 <T	.090 <T	.050 <T	.020 <T	.020 <T	BDL
APR	BDL	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	.030 <T
JUN	BDL	BDL	BDL	BDL	.040 <T	BDL
JUL	.040 <T	BDL	.	.	BDL	BDL
AUG	.200 <T	.120 <T	.090 <T	.040 <T	BDL	.120 <T
SEP	.050 <T	.040 <T	BDL	BDL	BDL	BDL
OCT	.040 <T	.040 <T	BDL	BDL	BDL	BDL
NOV	.040 <T	.050 <T	.030 <T	.030 <T	BDL	BDL
DEC	BDL	.030 <T	.050 <T	.030 <T	BDL	BDL
ALUMINUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 100.(A4)		
JAN	16.000	45.000	49.000	39.000	44.000	42.000
FEB	9.300	!!S	39.000	35.000	38.000	37.000
MAR	6.200	42.000	32.000	30.000	38.000	34.000
APR	6.800	40.000	32.000	33.000	35.000	33.000
MAY	7.800	70.000	48.000	55.000	53.000	52.000
JUN	15.000	54.000	50.000	37.000	47.000	48.000
JUL	6.600	68.000	.	.	69.000	66.000
AUG	7.000	59.000	61.000	49.000	65.000	70.000
SEP	9.700	140.000	62.000	94.000	100.000	110.000
OCT	7.600	160.000	73.000	110.000	110.000	120.000
NOV	9.900	74.000	62.000	59.000	62.000	63.000
DEC	14.000	57.000	47.000	44.000	54.000	53.000
ARSENIC (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 50.0 (A1)		
JAN	!AW	!AW	!AW	!AW	!AW	!AW
FEB	.660 <T	!!S	.410 <T	.390 <T	.380 <T	.370 <T
MAR	.780 <T	.440 <T	1.100	.430 <T	.330 <T	.310 <T
APR	.370 <T	.230 <T	BDL	.200 <T	.410 <T	.230 <T
MAY	.680 <T	.460 <T	.410 <T	.460 <T	.400 <T	.550 <T
JUN	.580 <T	.190 <T	.080 <T	.140 <T	.310 <T	.200 <T
JUL	1.700	1.100	.	.	1.000 <T	.900 <T
AUG	1.500	.630 <T	.630 <T	.800 <T	.570 <T	.740 <T
SEP	.980 <T	.760 <T	.640 <T	.760 <T	.810 <T	.690 <T
OCT	1.100	.670 <T	.580 <T	.570 <T	.670 <T	.460 <T
NOV	.700 <T	.210 <T	.130 <T	.190 <T	.250 <T	.240 <T
DEC	1.300	.900 <T	.260 <T	.680 <T	.860 <T	.680 <T
BARIUM (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 1000. (A1)		

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
JAN	49.000	21.000	24.000	22.000	22.000	21.000
FEB	35.000	!!S	23.000	21.000	21.000	20.000
MAR	31.000	22.000	22.000	20.000	21.000	20.000
APR	37.000	19.000	21.000	19.000	19.000	19.000
MAY	26.000	24.000	24.000	22.000	22.000	22.000
JUN	54.000	25.000	28.000	24.000	23.000	24.000
JUL	24.000	24.000	.	.	25.000	24.000
AUG	25.000	24.000	25.000	25.000	25.000	25.000
SEP	22.000	23.000	23.000	21.000	22.000	22.000
OCT	24.000	23.000	21.000	22.000	22.000	23.000
NOV	22.000	22.000	22.000	22.000	21.000	21.000
DEC	23.000	22.000	25.000	22.000	22.000	22.000
BORON (UG/L)			DET'N LIMIT = 0.200		GUIDELINE = 5000. (A1)	
JAN	!AW	!AW	26.000	26.000	25.000	25.000
FEB	27.000	!!S	22.000	22.000	23.000	21.000
MAR	22.000	23.000	25.000	21.000	24.000	22.000
APR	24.000	22.000	23.000	22.000	23.000	22.000
MAY	21.000	21.000	29.000	22.000	24.000	32.000
JUN	42.000	24.000	26.000	23.000	24.000	22.000
JUL	25.000	25.000	.	.	26.000	24.000
AUG	38.000	41.000	56.000	66.000	61.000	54.000
SEP	24.000	26.000	26.000	39.000	23.000	23.000
OCT	45.000	46.000	45.000	47.000	31.000	46.000
NOV	38.000	35.000	52.000	48.000	40.000	60.000
DEC	25.000	32.000	26.000	29.000	36.000	54.000
BERYLLIUM (UG/L)			DET'N LIMIT = 0.010		GUIDELINE = .20 (N)	
JAN	BDL	BDL	BDL	BDL	BDL	BDL
FEB	BDL	!!S	.020 <T	.050 <T	030 <T	.010 <T
MAR	BDL	.020 <T	.020 <T	.070 <T	.030 <T	BDL
APR	.020 <T	BDL	.020 <T	.030 <T	.020 <T	.020 <T
MAY	BDL	.030 <T	.020 <T	BDL	BDL	BDL
JUN	.030 <T	BDL	.030 <T	.020 <T	.020 <T	.050 <T
JUL	BDL	.020 <T	.	.	.070 <T	.040 <T
AUG	.040 <T	BDL	BDL	BDL	.060 <T	.080 <T
SEP	BDL	BDL	BDL	.040 <T	BDL	BDL
OCT	.210 <T	.060 <T	.110 <T	.100 <T	.070 <T	.150 <T
NOV	.050 <T	.050 <T	.100 <T	.120 <T	.080 <T	.110 <T
DEC	BDL	BDL	.030 <T	BDL	BDL	.030 <T
CADMIUM (UG/L)			DET'N LIMIT = 0.050		GUIDELINE = 5.000 (A1)	
JAN	BDL	BDL	BDL	.060 <T	BDL	BDL

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
FEB	BDL	!!S	.050 <T	.050 <T	BDL	BDL
MAR	BDL	.090 <T	BDL	BDL	BDL	BDL
APR	.060 <T	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	BDL	BDL	BDL	BDL	BDL	BDL
JUL	.060 <T	.070 <T	.	.	BDL	BDL
AUG	BDL	BDL	BDL	BDL	BDL	BDL
SEP	BDL	BDL	BDL	BDL	.070 <T	BDL
OCT	.090 <T	.080 <T	BDL	BDL	BDL	.060 <T
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	BDL	BDL	.060 <T	BDL	BDL	BDL
COBALT (UG/L)			DET'N LIMIT = 0.020		GUIDELINE = 1000 (H)	
JAN	.090 <T	.080 <T	.100 <T	.110 <T	.130 <T	.110 <T
FEB	.020 <T	!!S	.180 <T	.080 <T	.180 <T	.060 <T
MAR	.080 <T	.100 <T	.020 <T	BDL	BDL	.040 <T
APR	.060 <T	.100 <T	.050 <T	.050 <T	.080 <T	.060 <T
MAY	.090 <T	.060 <T	.050 <T	.110 <T	.060 <T	.060 <T
JUN	.060 <T	.140 <T	.100 <T	.080 <T	.080 <T	.100 <T
JUL	.080 <T	.070 <T	.	.	.070 <T	.090 <T
AUG	.110 <T	.120 <T	.040 <T	.100 <T	.130 <T	.080 <T
SEP	.180 <T	.170 <T	.190 <T	.270 <T	.130 <T	.140 <T
OCT	.220 <T	.100 <T	.270 <T	.130 <T	.160 <T	.160 <T
NOV	BDL	.200 <T	BDL	BDL	BDL	BDL
DEC	.260 <T	13.000	.110 <T	.270 <T	.300 <T	.250 <T
CHROMIUM (UG/L)			DET'N LIMIT = 0.100		GUIDELINE = 50. (A1)	
JAN	.570 <T	.300 <T	.230 <T	.340 <T	.430 <T	.390 <T
FEB	.500 <T	!!S	.350 <T	.330 <T	.500 <T	.420 <T
MAR	.390 <T	.610 <T	.360 <T	.390 <T	.450 <T	.380 <T
APR	.440 <T	.410 <T	.270 <T	.300 <T	.560 <T	.360 <T
MAY	.570 <T	.420 <T	1.000 <T	.500 <T	.600 <T	1.400
JUN	3.600	.520 <T	5.900	.410 <T	.350 <T	.460 <T
JUL	.790 <T	.460 <T	.	.	.560 <T	.480 <T
AUG	1.300	1.300	2.400	2.700	2.900	2.700
SEP	.670 <T	.390 <T	.470 <T	2.100	.330 <T	.300 <T
OCT	5.900	5.600	6.300	6.200	2.600	6.000
NOV	2.600	1.800	4.900	4.000	2.700	5.900
DEC	.410 <T	1.500	.350 <T	.640 <T	2.000	5.100
COPPER (UG/L)			DET'N LIMIT = .100		GUIDELINE = 1000 (A3)	
JAN	200.000	1.000	78.000	3.800	6.900	2.800
FEB	47.000	!!S	98.000	3.700	8.100	2.400

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
MAR	55.000	1.000	27.000	4.300	9.000	2.600
APR	89.000	1.000	68.000	3.400	7.600	2.300
MAY	87.000	1.100	98.000	4.800	8.300	3.000
JUN	140.000	1.300	98.000	5.200	9.900	3.500
JUL	97.000	1.600	.	.	9.700	3.700
AUG	190.000	1.800	97.000	7.600	14.000	4.800
SEP	70.000	1.300	29.000	5.700	8.400	3.500
OCT	63.000	1.200	97.000	6.100	8.600	3.700
NOV	50.000	.970 <T	71.000	4.700	8.100	2.900
DEC	54.000	1.100	69.000	4.500	9.700	4.000
IRON (UG/L)		DET'N LIMIT = 4.000		GUIDELINE = 300. (A3)		
JAN	29.000 <T	BDL	100.000	130.000	67.000	65.000
FEB	35.000 <T	"	130.000	140.000	81.000	93.000
MAR	10.000 <T	5.900 <T	98.000	95.000	82.000	94.000
APR	15.000 <T	BDL	100.000	100.000	84.000	68.000
MAY	19.000 <T	6.400 <T	150.000	150.000	110.000	110.000
JUN	37.000 <T	22.000 <T	130.000	150.000	76.000	100.000
JUL	8.100 <T	BDL	.	.	66.000	73.000
AUG	21.000 <T	BDL	130.000	120.000	76.000	91.000
SEP	11.000 <T	BDL	100.000	120.000	140.000	140.000
OCT	8.200 <T	BDL	120.000	140.000	130.000	120.000
NOV	12.000 <T	BDL	160.000	170.000	42.000 <T	40.000 <T
DEC	26.000 <T	BDL	110.000	110.000	36.000 <T	36.000 <T
MERCURY (UG/L)		DET'N LIMIT = 0.010		GUIDELINE = 1.000 (A1)		
JAN	.040	.040	.	.040	.	.010
FEB	.020	.020	.	.050	.	BDL
MAR	.010	.010	.	.010	.	BDL
APR	.020	.020	.	.020	.	.010
MAY	.020 <T	.020 <T	.	.050 <T	.	BDL
JUN	.060	.060	.	.070	.	BDL
JUL	.050 <T	.030 <T	.	.	.	BDL
AUG	.020 <T	.030 <T	.	.040 <T	.	BDL
SEP	.050 <T	.040 <T	.	.050 <T	.	BDL
OCT	.070	.070	.	.050 <T	.	BDL
NOV	.060	.050 <T	.	.060	.	BDL
DEC	.090	.070	.	.040 <T	.	BDL
MANGANESE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 50.0 (A3)		
JAN	4.000	.180 <T	4.400	4.500	2.700	3.000
FEB	1.500	"	4.100	4.500	2.800	2.900
MAR	1.500	.290 <T	2.600	2.600	2.800	3.100

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE						
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	3.900	.260 <T	4.900	4.400	3.200	2.800
MAY	3.000	.410 <T	5.500	5.600	4.100	4.100
JUN	6.500	.550	5.200	6.200	4.000	4.200
JUL	6.200	.600	.	.	3.300	3.600
AUG	33.000	2.200	5.700	7.000	4.700	5.600
SEP	3.900	.280 <T	4.300	4.600	5.300	5.600
OCT	2.400	.280 <T	4.300	4.800	4.900	4.700
NOV	1.900	.340 <T	5.200	5.200	1.600	1.600
DEC	2.700	11.000	3.700	3.700	1.700	1.700
MOLYBDENUM (UG/L)		DET'N LIMIT = 0.020		GUIDELINE = 500 (H)		
JAN	1.100	1.200	1.200	1.200	1.200	1.100
FEB	1.100	IIS	1.100	1.100	1.100	1.100
MAR	1.000	1.200	1.300	1.200	1.100	1.100
APR	1.000	1.100	1.000	.990	1.200	1.100
MAY	.870	.980	.950	.950	1.000	1.100
JUN	1.200	1.100	1.000	1.000	1.100	1.100
JUL	1.200	1.200	.	.	1.100	1.200
AUG	1.200	1.200	1.400	1.200	1.300	1.200
SEP	1.200	1.200	1.100	1.200	1.100	1.100
OCT	1.300	1.200	1.200	1.200	1.300	1.400
NOV	1.100	1.100	1.100	1.200	1.100	1.100
DEC	1.100	1.200	1.200	1.100	1.200	1.100
NICKEL (UG/L)		DET'N LIMIT = 0.100		GUIDELINE = 50. (F3)		
JAN	.700 <T	.750 <T	1.000 <T	1.300 <T	1.200 <T	1.200 <T
FEB	.130 <T	IIS	.540 <T	.280 <T	.580 <T	.620 <T
MAR	.400 <T	.900 <T	.740 <T	.800 <T	.170 <T	.610 <T
APR	.770 <T	1.200 <T	.910 <T	.960 <T	1.200 <T	.740 <T
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	.610 <T	.430 <T	.810 <T	.780 <T	.800 <T	.710 <T
JUL	1.300 <T	1.200 <T	.	.	1.100 <T	1.000 <T
AUG	.280 <T	.110 <T	.400 <T	BDL	BDL	.400 <T
SEP	.880 <T	.470 <T	.600 <T	.480 <T	.400 <T	.180 <T
OCT	.620 <T	.910 <T	.730 <T	.890 <T	1.200 <T	.620 <T
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	2.200	2.100	.880 <T	2.100	12.000	2.100
LEAD (UG/L)		DET'N LIMIT = 0.050		GUIDELINE = 50. (A1)		
JAN	.400	.650	12.000	.500	.400	.170 <T
FEB	.180 <T	IIS	12.000	.490	.400	.140 <T
MAR	.060 <T	.140 <T	2.600	.280	.340	.120 <T
APR	.110 <T	.080 <T	5.900	.210	.340	.110 <T

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
MAY	.160 <T	.080 <T	12.000	.300	.390	.150 <T
JUN	.180 <T	.080 <T	11.000	.400	.430	.180 <T
JUL	.170 <T	.030 <T	.	.	.460	.180 <T
AUG	.350	.070 <T	14.000	.630	.700	.280
SEP	.210	.080 <T	2.700	.450	.530	.200 <T
OCT	.100 <T	.070 <T	9.600	.380	.390	.230
NOV	.190 <T	.100 <T	12.000	.410	.380	.230
DEC	1.700	.240	8.300	.320	.380	.190 <T
ANTIMONY (UG/L)		DET'N LIMIT = .050		GUIDELINE = 146. (D4)		
JAN	.210	.190 <T	.340	.260	.240	.260
FEB	.190 <T	!!S	.260	.250	.210	.210
MAR	.180 <T	.220	.310	.270	.200	.200
APR	.180 <T	.170 <T	.190 <T	.160 <T	.200 <T	.190 <T
MAY	.220	.220	.240	.210	.210	.230
JUN	.270	.210	.270	.210	.240	.210
JUL	.210	.210	.	.	.240	.230
AUG	.730	.700	.830	.750	.790	.730
SEP	.560	.590	.620	.770	.470	.500
OCT	.940	.750	.880	.660	.660	.620
NOV	.550	1.000	.650	.630	.560	.580
DEC	.390	23.000	.540	.420	.420	.490
SELENIUM (UG/L)		DET'N LIMIT = 0.200		GUIDELINE = 10. (A1)		
JAN	!AW	!AW	!AW	!AW	!AW	!AW
FEB	1.200 <T	!!S	.440 <T	.530 <T	.720 <T	.700 <T
MAR	.320 <T	.470 <T	2.700 <T	1.000 <T	.950 <T	1.100 <T
APR	.250 <T	.270 <T	.660 <T	.830 <T	.510 <T	.980 <T
MAY	1.100 <T	1.400 <T	.870 <T	1.300 <T	1.200 <T	.870 <T
JUN	1.500 <T	.780 <T	.950 <T	1.200 <T	.270 <T	.910 <T
JUL	2.400 <T	2.300 <T	.	.	2.800 <T	2.500 <T
AUG	1.100 <T	BDL	BDL	2.300 <T	1.200 <T	1.500 <T
SEP	.290 <T	.750 <T	1.800 <T	2.300 <T	.960 <T	2.000 <T
OCT	1.300 <T	4.700 <T	4.400 <T	5.000 <T	3.700 <T	4.700 <T
NOV	BDL	BDL	BDL	BDL	BDL	BDL
DEC	.650 <T	2.900 <T	1.600 <T	3.700 <T	2.400 <T	4.000 <T
STRONTIUM (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2000.(H)		
JAN	1100.000	180.000	200.000	190.000	200.000	190.000
FEB	690.000	!!S	190.000	180.000	180.000	180.000
MAR	590.000	200.000	190.000	180.000	180.000	190.000
APR	790.000	180.000	180.000	170.000	180.000	180.000
MAY	300.000	200.000	190.000	200.000	190.000	190.000

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT				DISTRIBUTION SYSTEM	
SITE	RAW	TREATED	SITE 1		SITE 2	
TYPE			STANDING	FREE FLOW	STANDING	FREE FLOW
JUN	1500.000	200.000	200.000	200.000	190.000	200.000
JUL	180.000	180.000	.	.	180.000	180.000
AUG	190.000	190.000	190.000	190.000	190.000	190.000
SEP	170.000	170.000	170.000	170.000	170.000	180.000
OCT	190.000	190.000	190.000	180.000	200.000	190.000
NOV	160.000	160.000	170.000	170.000	170.000	160.000
DEC	170.000	170.000	190.000	170.000	180.000	170.000
TITANIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = N/A	
JAN	5.100	3.100	2.600	2.800	2.200	2.300
FEB	6.300	!!S	4.800	5.400	4.900	5.100
MAR	9.200	7.500	5.500	5.300	5.700	5.500
APR	7.500	3.800	4.000	4.100	3.900	4.000
MAY	8.600	8.100	8.000	7.800	7.400	8.000
JUN	6.700	3.400	3.900	3.600	3.200	3.300
JUL	3.300	3.300	.	.	3.600	3.700
AUG	9.900	9.800	8.700	10.000	9.200	10.000
SEP	3.900	3.700	3.900	4.500	4.100	4.300
OCT	3.200	2.900	3.000	2.800	3.300	3.600
NOV	1.400 <T	1.000 <T	1.800 <T	1.700 <T	1.500 <T	1.500 <T
DEC	3.100	3.500	3.200	2.000 <T	2.800	3.300
THALLIUM (UG/L)			DET'N LIMIT = .010		GUIDELINE = 13. (D4)	
JAN	.020 <T	BDL	.030 <T	.020 <T	.010 <T	.010 <T
FEB	.010 <T	!!S	.040 <T	.050 <T	.010 <T	.020 <T
MAR	.010 <T	.030 <T	.020 <T	.010 <T	.030 <T	.010 <T
APR	.020 <T	BDL	BDL	BDL	BDL	BDL
MAY	BDL	BDL	BDL	BDL	BDL	BDL
JUN	.020 <T	BDL	BDL	BDL	.020 <T	BDL
JUL	.030 <T	.030 <T	.	.	BDL	.030 <T
AUG	.040 <T	.030 <T	.020 <T	BDL	BDL	.020 <T
SEP	BDL	BDL	BDL	BDL	BDL	BDL
OCT	BDL	BDL	.020 <T	BDL	BDL	BDL
NOV	BDL	.020 <T	.020 <T	BDL	.020 <T	BDL
DEC	BDL	BDL	.050 <T	BDL	BDL	BDL
URANIUM (UG/L)			DET'N LIMIT = .020		GUIDELINE = 20. (A2)	
JAN	.400	.300	.300	.300	.300	.300
FEB	.310	!!S	.360	.300	.330	.310
MAR	.300	.390	.310	.270	.310	.260
APR	.300	.310	.250	.270	.270	.240
MAY	.280	.280	.320	.300	.290	.300
JUN	.360	.250	.280	.240	.280	.260

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
JUL	.300	.280	.	.	.280	.290
AUG	.370	.290	.310	.290	.300	.330
SEP	.360	.270	.260	.270	.280	.260
OCT	.400	.350	.250	.320	.310	.320
NOV	.300	.260	.260	.240	.260	.280
DEC	.360	.260	.300	.270	.280	.290
VANADIUM (UG/L)			DET'N LIMIT = .050		GUIDELINE = 100 (M)	
JAN	.310 <T	.220 <T	.310 <T	.370 <T	.350 <T	.340 <T
FEB	.130 <T	IIS	.130 <T	.100 <T	.120 <T	.100 <T
MAR	.230 <T	.250 <T	.180 <T	.150 <T	.210 <T	.210 <T
APR	.200 <T	.220 <T	.120 <T	.100 <T	.200 <T	.150 <T
MAY	.180 <T	.150 <T	.100 <T	.100 <T	.120 <T	.110 <T
JUN	.280 <T	.190 <T	.130 <T	.150 <T	.170 <T	.170 <T
JUL	.310 <T	.300 <T	.	.	.240 <T	.240 <T
AUG	.340 <T	.280 <T	.170 <T	.120 <T	.220 <T	.250 <T
SEP	.270 <T	.230 <T	.150 <T	.150 <T	.220 <T	.230 <T
OCT	.320 <T	.370 <T	.220 <T	.230 <T	.300 <T	.310 <T
NOV	.220 <T	.200 <T	.120 <T	.110 <T	.130 <T	.140 <T
DEC	.280 <T	.200 <T	.190 <T	.110 <T	.160 <T	.120 <T
ZINC (UG/L)			DET'N LIMIT = .001		GUIDELINE = 5000. (A3)	
JAN	5.100	1.200	38.000	1.500	5.600	2.000
FEB	1.300	IIS	47.000	2.200	7.400	1.100
MAR	1.400	2.500	25.000	2.100	8.100	2.100
APR	2.100	1.600	33.000	1.800	7.400	2.000
MAY	2.600	1.000 <T	70.000	1.800	7.500	2.100
JUN	2.500	1.500	76.000	3.000	8.600	2.300
JUL	2.900	2.200	.	.	9.300	2.600
AUG	4.600	1.400	58.000	4.500	12.000	3.000
SEP	2.900	2.300	17.000	3.800	8.200	3.000
OCT	1.800	1.200	61.000	1.900	8.200	1.900
NOV	2.200	.690 <T	50.000	1.500	7.500	1.500
DEC	2.900	1.300	37.000	1.800	11.000	3.200

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROAROMATICS						
HEXACHLOROETHANE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 1900 (D4)	
JAN	BDL	BDL	.	3.000 <T	.	2.000 <T
FEB	BDL	BDL	.	4.000 <T	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	ILA
OCT	BDL	2.000 <T	.	1.000 <T	.	2.000 <T
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
CHLOROPHENOLS						
PENTACHLOROPHENOL (NG/L)			DET'N LIMIT = 50.		GUIDELINE = 60000 (B1)	
JUN	BDL	BDL	.	.	.	.
NOV	30.000 <T	BDL	.	.	.	.

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
PESTICIDES & PCB						
ALPHA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 700 (G)	
JAN	BDL	BDL	.	2.000 <T	.	BDL
FEB	1.000 <T	2.000 <T	.	BDL	.	2.000 <T
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	2.000 <T	.	BDL	.	2.000 <T
MAY	1.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
JUN	BDL	BDL	.	BDL	.	BDL
JUL	3.000 <T	5.000 <T	.	.	.	2.000 <T
AUG	3.000 <T	BDL	.	2.000 <T	.	2.000 <T
SEP	1.000 <T	2.000 <T	.	1.000 <T	.	!LA
OCT	1.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
NOV	2.000 <T	2.000 <T	.	2.000 <T	.	2.000 <T
DEC	BDL	2.000 <T	.	1.000 <T	.	2.000 <T
BETA BHC (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 300 (G)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	2.000 <T	1.000 <T	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	4.000 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	!LA
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
LINDANE (NG/L)			DET'N LIMIT = 1.000		GUIDELINE = 4000 (A1)	
JAN	BDL	BDL	.	BDL	.	BDL
FEB	BDL	BDL	.	BDL	.	BDL
MAR	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	3.000 <T	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	2.000 <T	4.000 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	!LA
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	1.000 <T	.	1.000 <T	.	1.000 <T
DEC	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
PHENOLICS (UG/L)	PHENOLICS		DET'N LIMIT = 0.2		GUIDELINE = 2.00 (A3)	
JAN	BDL	BDL	.	.	.	.
FEB	BDL	BDL	.	.	.	.
MAR	BDL	BDL	.	.	.	.
APR	BDL	BDL	.	.	.	.
MAY	BDL	.400 <T	.	.	.	.
JUN	.400 <T	.800 <T	.	.	.	.
JUL	.800 <T	.600 <T	.	.	.	.
AUG	1.400	1.600	.	.	.	.
SEP	BDL	BDL	.	.	.	.
OCT	.800 <T	.800 <T	.	.	.	.
NOV	.800 <T	1.000 <T	.	.	.	.
DEC	1.000	.800	.	.	.	.

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
VOLATILES						
BENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 5.0 (81)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.100 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
TOLUENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 24.0 (84)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	.050 <T	.250 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
ETHYLBENZENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 2.4 (84)		
JAN	BDL	.050 <T	.	BDL	.	BDL
APR	BDL	.050 <T	.	BDL	.	BDL
MAY	BDL	.100 <T	.	BDL	.	BDL
JUN	BDL	BDL	.	.100 <T	.	BDL
JUL	.150 <T	.150 <T	. .	.	.	.050 <T
AUG	.050 <T	BDL	.	.050 <T	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	.050 <T	.150 <T	.	BDL	.	BDL
NOV	.050 <T	BDL	.	BDL	.	BDL
DEC	BDL	.050 <T	.	BDL	.	BDL
M-XYLENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 300 (84)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.100 <T	.	.	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE TYPE	WATER TREATMENT PLANT RAW	WATER TREATMENT PLANT TREATED	DISTRIBUTION SYSTEM SITE 1 STANDING	DISTRIBUTION SYSTEM SITE 1 FREE FLOW	DISTRIBUTION SYSTEM SITE 2 STANDING	DISTRIBUTION SYSTEM SITE 2 FREE FLOW
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
O-XYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 300 (B4)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.100 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
STYRENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 46.5 (D2)		
OCT	.500	.550	.	.150 <T	.	.150 <T
NOV	.300 <T	.150 <T	.	.250 <T	.	.050 <T
DEC	BDL	.150 <T	.	.050 <T	.	.100 <T
CHLOROFORM (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)		
JAN	.700 UCS	11.300	.	6.900	.	9.200
APR	BDL	19.200	.	11.100	.	13.600
MAY	BDL	27.700	.	23.500	.	19.600
JUN	1.500	31.300	.	16.000	.	21.300
JUL	.300 <T	11.100	.	.	.	15.200
AUG	BDL	15.100	.	13.500	.	13.600
SEP	BDL	17.200	.	12.900	.	13.800
OCT	BDL	18.500	.	12.800	.	11.500
NOV	BDL	12.900	.	8.200	.	9.100
DEC	BDL	12.300	.	6.900	.	9.100
111, TRICHLOROETHANE (UG/L)		DET'N LIMIT = .020		GUIDELINE = 200 (D1)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	.080 <T	BDL	.	BDL	.	BDL
JUL	BDL	BDL	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL

TABLE 5

DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

SITE	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
			SITE 1		SITE 2	
TYPE	RAW	TREATED	STANDING	FREE FLOW	STANDING	FREE FLOW
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
DICHLOROBROMOMETHANE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 350 (A1+)		
JAN	BDL	9.900	.	6.900	.	8.100
APR	BDL	13.000	.	8.000	.	9.800
MAY	BDL	11.850	.	10.550	.	10.950
JUN	BDL	12.300	.	9.600	.	11.950
JUL	BDL	9.900	.	.	.	10.700
AUG	BDL	12.800	.	11.900	.	10.600
SEP	BDL	13.500	.	10.250	.	10.700
OCT	BDL	12.900	.	9.500	.	9.700
NOV	BDL	11.100	.	8.100	.	8.150
DEC	BDL	10.800	.	6.900	.	9.000
CHLORODIBROMOMETHANE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 350 (A1+)		
JAN	BDL	5.000	.	3.600	.	3.900
APR	BDL	5.900	.	3.800	.	4.600
MAY	BDL	3.300	.	2.400	.	3.500
JUN	BDL	4.200	.	3.200	.	3.600
JUL	BDL	6.800	.	.	.	4.400
AUG	BDL	7.200	.	7.400	.	5.400
SEP	BDL	6.900	.	6.800	.	5.500
OCT	BDL	8.000	.	5.700	.	6.000
NOV	BDL	6.700	.	4.800	.	5.300
DEC	BDL	6.700	.	3.500	.	5.200
T-CHLOROETHYLENE (UG/L)		DET'N LIMIT = .050		GUIDELINE = 10.0 (C2)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	.100 <T	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.050 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
BROMOFORM (UG/L)		DET'N LIMIT = .200		GUIDELINE = 350 (A1+)		
JAN	BDL	.400 <T	.	.200 <T	.	.200 <T

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DRINKING WATER SURVEILLANCE PROGRAM KINGSTON WTP 1988

	WATER TREATMENT PLANT		DISTRIBUTION SYSTEM			
SITE TYPE	RAW	TREATED	SITE 1		SITE 2	
			STANDING	FREE FLOW	STANDING	FREE FLOW
APR	BDL	.600 <T	.	.200 <T	.	.400 <T
MAY	BDL	BDL	.	BDL	.	.200 <T
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	.400 <T	.	.	.	.400 <T
AUG	BDL	.400 <T	.	.400 <T	.	.400 <T
SEP	BDL	1.000 <T	.	.600 <T	.	.600 <T
OCT	BDL	.800 <T	.	.600 <T	.	.600 <T
NOV	BDL	.600 <T	.	.600 <T	.	.600 <T
DEC	BDL	.800 <T	.	.400 <T	.	.600 <T
1,4 DICHLOROBENZENE (UG/L)		DET'N LIMIT = .100		GUIDELINE = 5.0 (B1)		
JAN	BDL	BDL	.	BDL	.	BDL
APR	BDL	BDL	.	BDL	.	BDL
MAY	BDL	BDL	.	BDL	.	BDL
JUN	BDL	BDL	.	BDL	.	BDL
JUL	BDL	1.000 <T	.	.	.	BDL
AUG	BDL	BDL	.	BDL	.	BDL
SEP	BDL	BDL	.	BDL	.	BDL
OCT	BDL	BDL	.	BDL	.	BDL
NOV	BDL	BDL	.	BDL	.	BDL
DEC	BDL	BDL	.	BDL	.	BDL
TOTL TRIHALOMETHANES (UG/L)		DET'N LIMIT = .500		GUIDELINE = 350 (A1)		
JAN	.700 UCS	26.600	.	17.600	.	21.400
APR	BDL	38.700	.	23.100	.	28.400
MAY	BDL	42.850	.	36.450	.	34.250
JUN	1.500 <T	47.800	.	28.800	.	36.850
JUL	BDL	28.200	.	.	.	30.700
AUG	BDL	35.500	.	33.200	.	30.000
SEP	BDL	38.600	.	30.550	.	30.600
OCT	BDL	40.200	.	28.600	.	27.800
NOV	BDL	31.300	.	21.700	.	23.150
DEC	BDL	30.600	.	17.700	.	23.900

Table 6

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE
BACTERIOLOGICAL			
STANDARD PLATE COUNT MEMBRANE FILTRATION	CT/ML	0	500/ML(A1)
P/A BOTTLE		0	0 (A1*)
TOTAL COLIFORM MEMBRANE FILTRATION	CT/100ML	0	5/100mL(A1)
TOTAL COLIFORM BACKGROUND MF	CT/100ML	0	N/A
CHLOROAROMATICS			
HEXACHLOROBUTADIENE	NG/L	1.000	450. (D4)
1,2,3-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,3,4-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,3,5-TETRACHLOROBENZENE	NG/L	1.000	10000 (I)
1,2,4-TRICHLOROBENZENE	NG/L	5.000	10000 (I)
1,2,4,5-TETRACHLOROBENZENE	NG/L	1.000	38000 (D4)
1,3,5-TRICHLOROBENZENE	NG/L	5.000	10000 (D4)
HEXACHLOROBENZENE	NG/L	1.0	10. (C1)
HEXACHLOROETHANE	NG/L	1.000	1900. (D4)
OCTACHLOROSTYRENE	NG/L	1.000	N/A
PENTACHLOROBENZENE	NG/L	1.000	74000 (D4)
2,3,6-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,4,5-TRICHLOROTOLUENE	NG/L	5.000	N/A
2,6,A-TRICHLOROTOLUENE	NG/L	5.000	N/A
CHLOROPHENOLS			
2,3,4-TRICHLOROPHENOL	NG/L	50.	N/A
2,3,4,5-TETRACHLOROPHENOL	NG/L	50.	N/A
2,3,5,6-TETRACHLOROPHENOL	NG/L	50.	N/A
2,4,5-TRICHLOROPHENOL	NG/L	50.	2600000 (D4)
2,4,6-TRICHLOROPHENOL	NG/L	50.	5000. (B1)
PENTACHLOROPHENOL	NG/L	50.	60000. (B1)
CHEMISTRY (FLD)			
FIELD COMBINED CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD FREE CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD TOTAL CHLORINE RESIDUAL	MG/L	N/A	N/A
FIELD PH	DIMENSIONLESS	N/A	6.5-8.5(A4)
FIELD TEMPERATURE	^{o}C	N/A	<15 ^{o}C(A1)
FIELD TURBIDITY	FTU	N/A	1.0 (A1)
CHEMISTRY (LAB)			
ALKALINITY	MG/L	.200	30-500(A4)
CALCIUM	MG/L	.100	100. (F2)
CYANIDE	MG/L	.001	.20(A1)
CHLORIDE	MG/L	.200	250. (A3)
COLOUR	TCU	.5	5.0 (A3)
CONDUCTIVITY	UMHO/CM	1.	400. (F2)
FLUORIDE	MG/L	.01	2.4 (A1)
HARDNESS	MG/L	.50	80-100(A4)
MAGNESIUM	MG/L	.05	30. (F2)
SODIUM	MG/L	.20	200. (C3)
AMMONIUM TOTAL	MG/L	.002	.05(F2)
NITRITE	MG/L	.001	1.0 (A1)
TOTAL NITRATES	MG/L	.02	10. (A1)
NITROGEN TOTAL KJELDAHL	MG/L	.02	N/A
PH	DIMENSIONLESS	N/A	6.5-8.5(A4)
PHOSPHORUS FIL REACT	MG/L	.0005	N/A
PHOSPHORUS TOTAL	MG/L	.002	.40(F2)
TOTAL SOLIDS	MG/L	1.	500. (A3)
TURBIDITY	FTU	.02	1.0 (A1)
METALS			
ALUMINUM	UG/L	.050	100. (A4)

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
BERYLLIUM	UG/L	.010	0.20	(H)
CADMIUM	UG/L	.050	5.0	(A1)
COBALT	UG/L	.020	1000.	(H)
CHROMIUM	UG/L	.100	50.	(A1)
COPPER	UG/L	.100	1000.	(A3)
IRON	UG/L	4.0	300.	(A3)
MERCURY	UG/L	.01	1.0	(A1)
MANGANESE	UG/L	.050	50.	(A3)
MOLYBDENUM	UG/L	.020	500.	(H)
NICKEL	UG/L	.100	50.	(F3)
LEAD	UG/L	.050	50.	(A1)
SELENIUM	UG/L	.200	10.	(A1)
SILVER	UG/L	.020	50.	(A1)
STRONTIUM	UG/L	.050	2000.	(H)
THALLIUM	UG/L	.010	13.	(D4)
TITANIUM	UG/L	.050	N/A	
URANIUM	UG/L	.020	20.	(A2)
VANADIUM	UG/L	.050	100.	(H)
ZINC	UG/L	.020	500.	(A3)
PHENOLICS				
PHENOLICS (UNFILTERED REACTIVE)	UG/L	.2	2.0	(A3)
PESTICIDES & PCB				
ALDRIN	NG/L	1.0	700.	(A1)
AMETRINE	NG/L	50.	300000.	(D3)
ATRAZINE	NG/L	50.	60000.	(B3)
ALPHA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	700.	(G)
BETA HEXACHLOROCYCLOHEXANE (BHC)	NG/L	1.0	300.	(G)
GAMMA HEXACHLOROCYCLOHEXANE(LINDANE)	NG/L	1.0	4000.	(A1)
ALPHA CHLORDANE	NG/L	2.0	7000.	(A1)
GAMMA CHLORDANE	NG/L	2.0	7000.	(A1)
BLADEX	NG/L	100.	10000.	(B3)
DIELDRIN	NG/L	2.0	700.	(A1)
METHOXYCHLOR	NG/L	5.0	100000.	(A1)
ENDOSULFAN 1 (THIODAN I)	NG/L	2.0	74000.	(D4)
ENDOSULFAN 2 (THIODAN II)	NG/L	4.0	74000.	(D4)
ENDRIN	NG/L	4.0	200.	(A1)
ENDOSULFAN SULPHATE(THIODAN SULPHATE)	NG/L	4.0	N/A	
HEPTACHLOR EPOXIDE	NG/L	1.0	3000.	(A1)
HEPTACHLOR	NG/L	1.0	3000.	(A1)
METOLACHLOR	NG/L	500.	50000.	(B3)
MIREX	NG/L	5.0	N/A	
OXYCHLORDANE	NG/L	2.0	N/A	
O,P-DDT	NG/L	5.0	30000.	(A1)
PCB	NG/L	20.0	3000.	(A2)
O,P-DDD	NG/L	5.0	N/A	
PPDDE	NG/L	1.0	30000.	(A1)
PPDDT	NG/L	5.0	30000.	(A1)
ATRATONE	NG/L	50.	N/A	
ALACHLOR	NG/L	500.	35000.	(D2)
PROMETONE	NG/L	50.	52500.	(D3)
PROPAZINE	NG/L	50.	16000.	(D2)
PROMETRYNE	NG/L	50.	1000.	(B3)
SENCOR (METRIBUZIN)	NG/L	100.	80000.	(B2)
SIMAZINE	NG/L	50.	10000.	(B3)
POLYAROMATIC HYDROCARBONS				
PHENANTHRENE	NG/L	10.0	N/A	
ANTHRACENE	NG/L	1.0	N/A	
FLUORANTHENE	NG/L	20.0	42000.	(D4)
PYRENE	NG/L	20.0	N/A	
BENZO(A)ANTHRACENE	NG/L	20.0	N/A	
CHRYSENE	NG/L	50.0	N/A	
DIMETHYL BENZO(A)ANTHRACENE	NG/L	5.0	N/A	
BENZO(E)PYRENE	NG/L	50.0	N/A	
BENZO(B)FLUORANTHENE	NG/L	10.0	N/A	
PERYLENE	NG/L	10.0	N/A	
BENZO(K)FLUORANTHENE	NG/L	1.0	N/A	
BENZO(A)PYRENE	NG/L	5.0	10.	(B1)
BENZO(G,H,I)PERYLENE	NG/L	20.0	N/A	

SCAN/PARAMETER	UNIT	DETECTION LIMIT	GUIDELINE	
DIBENZO(A,H)ANTHRACENE	NG/L	10.0	N/A	
INDENO(1,2,3-C,D)PYRENE	NG/L	20.0	N/A	
BENZO(B)CHRYSENE	NG/L	2.0	N/A	
CORONENE	NG/L	10.0	N/A	
SPECIFIC PESTICIDES				
TOXAPHENE	NG/L	N/A	5000.	(A1)
2,4,5-TRICHLOROBUTYRIC ACID (2,4,5-T)	NG/L	50.	280000.	(B1)
2,4-DICHLOROBUTYRIC ACID (2,4-D)	NG/L	100.	100000.	(A1)
2,4-DICHLORORPHENOXYBUTYRIC ACID	NG/L	200.	18000.	(B3)
2,4-D PROPIONIC ACID	NG/L	100.	N/A	
DICAMBA	NG/L	100.	87000.	(B3)
PICHLORAM	NG/L	100.	2450000.	(D3)
SILVEX (2,4,5-TP)	NG/L	50.	10000.	(A1)
DIAZINON	NG/L	20.	14000.	(A1)
DICHLOROVOS	NG/L	20.	N/A	
DURSBAN	NG/L	20.	N/A	
ETHION	NG/L	20.	35000.	(G)
GUTHION	NG/L	N/A	N/A	
MALATHION	NG/L	20.	160000.	(G)
MEVINPHOS	NG/L	20.	N/A	
METHYL PARATHION	NG/L	50.	7000.	(B3)
METHYLTRITHION	NG/L	20.	N/A	
PARATHION	NG/L	20.	35000.	(B1)
PHORATE (THIMET)	NG/L	20.	35.	(D2)
RELDAN	NG/L	20.	N/A	
RONNEL	NG/L	20.	N/A	
AMINOCARB	NG/L	N/A	N/A	
BENOMYL	NG/L	N/A	N/A	
BUX (METALKAMATE)	NG/L	2000.	N/A	
CARBOFURAN	NG/L	2000.	18000.	(D3)
CIPC (CHLORPROPHAM)	NG/L	2000.	350000.	(G)
DIALLATE	NG/L	2000.	30000.	(H)
EPTAM	NG/L	2000.	N/A	
IPC	NG/L	2000.	N/A	
PROPOXUR (BAYGON)	NG/L	2000.	90000.	(G)
SEVIN (CARBARYL)	NG/L	200.	70000.	(A1)
SUTAN (BUTYLATE)	NG/L	2000.	245000.	(D3)
VOLATILES				
BENZENE	UG/L	.050	5.0	(B1)
TOLUENE	UG/L	.050	24.0	(B4)
ETHYLBENZENE	UG/L	.050	2.4	(B4)
PARA-XYLENE	UG/L	.100	300.	(B4)
META-XYLENE	UG/L	.100	300.	(B4)
ORTHO-XYLENE	UG/L	.050	300.	(B4)
1,1-DICHLOROETHYLENE	UG/L	.100	7.0	(D1)
ETHLYENE DIBROMIDE	UG/L	.05	50.	(G)
METHYLENE CHLORIDE	UG/L	.500	1750.	(D3)
TRANS-1,2-DICHLOROETHYLENE	UG/L	.100	350.	(D3)
1,1-DICHLOROETHANE	UG/L	.100	N/A	
CHLOROFORM	UG/L	.100	350.	(A1+)
1,1,1-TRICHLOROETHANE	UG/L	.020	200.	(D1)
1,2-DICHLOROETHANE	UG/L	.050	5.0	(D1)
CARBON TETRACHLORIDE	UG/L	.200	5.0	(D1)
1,2-DICHLOROPROPANE	UG/L	.050	10.0	(G)
TRICHLOROETHYLENE	UG/L	.100	5.0	(D1)
DICHLOROBROMOMETHANE	UG/L	.050	350.	(A1+)
1,1,2-TRICHLOROETHANE	UG/L	.050	.60	(D4)
CHLORODIBROMOMETHANE	UG/L	.100	350.	(A1+)
TETRACHLOROETHYLENE	UG/L	.050	10.0	(C2)
BROMOFORM	UG/L	.200	350.	(A1+)
1,1,2,2-TETRACHLOROETHANE	UG/L	.050	0.17	(D4)
CHLOROBENZENE	UG/L	.100	1510.	(D3)
1,4-DICHLOROBENZENE	UG/L	.100	5.0	(B1)
1,3-DICHLOROBENZENE	UG/L	.100	130.	(G)
1,2-DICHLOROBENZENE	UG/L	.050	200.	(B1)
TRIFLUOROCHLOROTOLUENE	UG/L	.100	N/A	
TOTAL TRIHALOMETHANES	UG/L	.500	350.	(A1)
STYRENE	UG/L	.05	46.5	(D2)